Access DB# 175289

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Irina Dic Examiner #: 69332 Date: 1/6/06
Art Unit: 1711 Phone Number 30 2 - 6891 Serial Number: 10/642,678
Mail Box and Bldg/Room Location: 10D71 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

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Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _____

Inventors (please provide full names): _____

SCIENTIFIC REFERENCE BR
Sci & Tech Inf - Ctr
JAN 06 RECD
Pat. & T.M. Office

Earliest Priority Filing Date: _____

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Formula (1) in claim 1 in that A and B have been defined in claim 4. Thanks.

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STAFF USE ONLY	Type of Search	Vendors and cost where applicable
Searcher: EL	NA Sequence (#)_____	STN _____
Searcher Phone #: _____	AA Sequence (#)_____	Dialog _____
Searcher Location: _____	Structure (#) _____	Questel/Orbit _____
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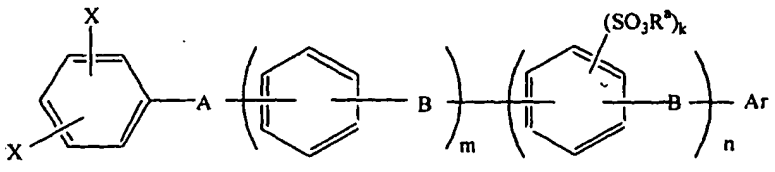
Date Completed: 1-10-06	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: _____	Fulltext _____	Sequence Systems _____
Clerical Prep Time: _____	Patent Family _____	WWW/Internet _____
Online Time: _____	Other _____	Other (specify) _____

PTO-1590 (8-01)

Claims:

1. An aromatic sulfonic acid ester derivative represented by the formula (1);



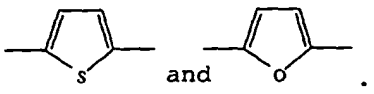
... (1)

in which X is an atom or a group selected from a halogen atom excluding fluorine, $-OSO_3CH_3$ and $-OSO_3CF_3$, A is a divalent electron attractive group, B is a divalent electron donating group or a direct bonding, R^a is a hydrocarbon group of 1 to 20 carbon atoms, Ar is an aromatic group having a substituent represented by $-SO_3R^b$ (wherein R^b is a hydrocarbon group of 1 to 20 carbon atoms), m is an integer of 0 to 10, n is an integer of 0 to 10 and k is an integer of 1 to 4.

2. An aromatic sulfonic acid ester derivative according to claim 1 wherein the aromatic group in the aromatic group having a substituent represented by- SO_3R^b is a group selected from phenyl group, naphthyl group, anthracenyl group and phenanethyl group.

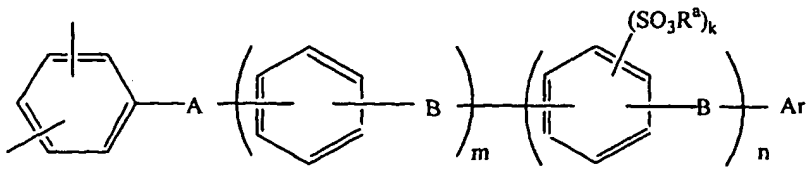
3. An aromatic sulfonic acid ester derivative according to claim 1 wherein R^a and R^b is a group of 4 to 20 carbon atoms selected from a linear hydrocarbon group, a branched hydrocarbon group, an alicyclic hydrocarbon group and a hydrocarbon group having a 5-membered hetero ring.

4. An aromatic sulfonic acid ester derivative according to claim 1 wherein the divalent electron attractive group is selected from -CO-, -CONH-, $-(CF_2)_p-$ (wherein p is an integer of 1 to 10), $-C(CF_3)_2-$, -COO-, -SO- and $-SO_2-$, and the divalent electron donating group is a group selected from -O-, -S-, -CH=CH-, -C≡C-,



.

5. A polyarylene comprising repeating structural units derived from an aromatic compound, which contains at least repeating structural units represented by the formula (1');



... (1')

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Bib Data Sheet

CONFIRMATION NO. 2749

SERIAL NUMBER	FILING DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/642,694	08/19/2003 RULE	528	1711	241675US0

APPLICANTS

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Kohei Goto, Tokyo, JAPAN;Yousuke Konno, Tokyo, JAPAN;
Toshihiro Ohtsuki, Tokyo, JAPAN;
Yoshitaka Yamakawa, Tokyo, JAPAN;
Toshiaki Kadota, Tokyo, JAPAN;

** CONTINUING DATA **********

** FOREIGN APPLICATIONS **********
JAPAN 2002-242508 08/22/2002
JAPAN 2002-364229 12/16/2002

IF REQUIRED, FOREIGN FILING LICENSE GRANTED
** 11/12/2003

Foreign Priority claimed ☐ yes ☐ no 35 USC 119 (a-d) conditions met ☐ yes ☐ no ☐ Met after Allowance Verified and Acknowledged Examiner's Signature Initials	STATE OR COUNTRY JAPAN	SHEETS DRAWING 32	TOTAL CLAIMS 9	INDEPENDENT CLAIMS 2

ADDRESS
22850
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA , VA
22314

TITLE
Novel aromatic sulfonic acid ester derivative, polyarylene, polyarylene having sulfonic acid group and process for producing the same, and polymer solid electrolyte and proton-conductive membrane

☐ All Fees

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L3                STR
L4                STR

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L7           36664 S GOTO ?/AU
L8            2311 S OHTSUKI ?/AU
L9            6282 S YAMAKAWA ?/AU
L10           3153 S KADOTA ?/AU
L11              1 S L5 AND L6 AND L7 AND L8 AND L9 AND L10
                   SEL RN

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L13              9 S L12 AND PMS/CI
L14                SCR 2043
L15              1 S L1 AND L2 AND L3 AND L4
L16             19 S L1 AND L2 AND L3 AND L4 FUL
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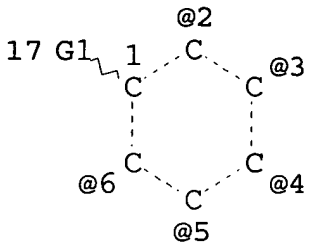

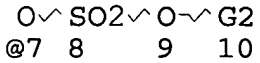

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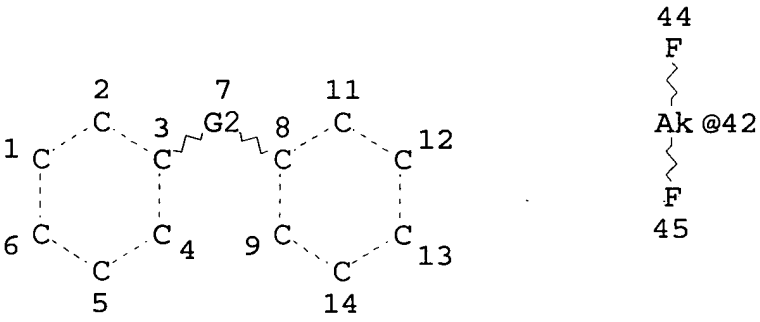

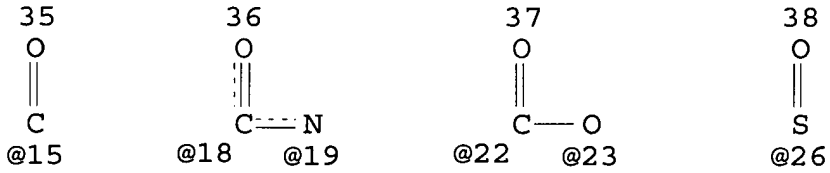

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STEREO ATTRIBUTES: NONE
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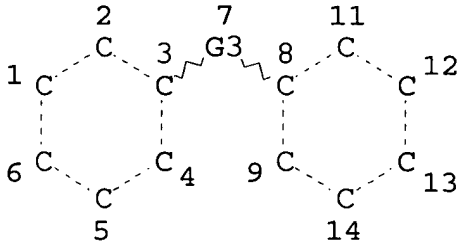

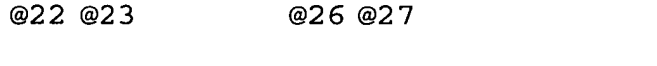

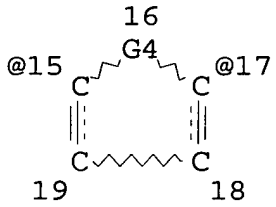

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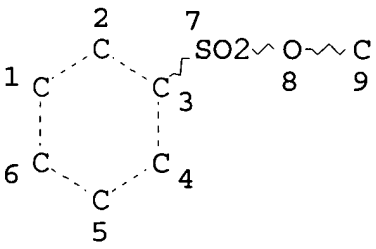

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DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 9

STEREO ATTRIBUTES: NONE
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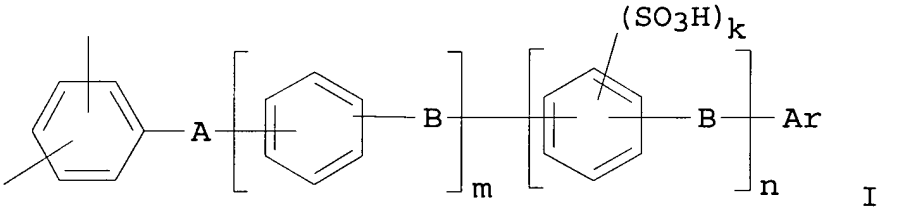
L17 ANSWER 1 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:1282215 Document No. 144:29825 Electrochromic displays including polymer electrolyte films and layers coloring by oxidation or reduction. Yoshii, Kimihiko; Otsuki, Takatoshi (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005338204 A2 20051208, 13 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2004-154143 20040525.
GI



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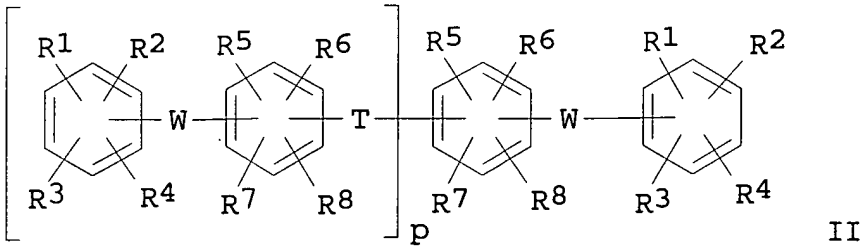

II

AB The devices comprise a pair of electrodes sandwiching successive layers of (1) an oxidn. coloring layer, (2) a solid electrolyte layer, selected from polysulfones, polyether sulfones, polyether ether sulfones, polyaryl ether sulfones, poly(phenylene oxides), poly(phenylene sulfides), poly(phenylene sulfoxides), poly(p-phenylenes), polyarylenes, polyether ketones, polyether ether ketones, polyether ketone ketones, polybenzoxazoles, polybenzothiazoles, polybenzimidazoles, polyimides, polyamides, polyamide imides, arom. polymers contg. proton-conducting groups, and (3) a redn. coloring layer. The polymer electrolyte layer may esp. comprise sulfonated polyarylenes including structural repeating units I (A = divalent electron-attracting group; B = bivalent electron-donating group, direct bond; Ar = SO3H-contg. arom. group; m, n = integer of 0-10; k = integer of 1-4) and II (R1-8 = H, F, (fluoro)alkyls, allyls, aryls, cyano; W = bivalent electron-attracting group, single bond; T = single bond, bivalent org. group; p = 0, pos. integer). The devices give high-contrast images.

IT **852156-73-1DP**, 2,2-Bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-4,4'-dichloro benzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate block copolymer, hydrogenated
(polymer electrolyte layer; electrochromic displays including polymer electrolyte films and layers coloring by oxidn. or redn.)

RN 852156-73-1 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol], block (9CI) (CA INDEX NAME)

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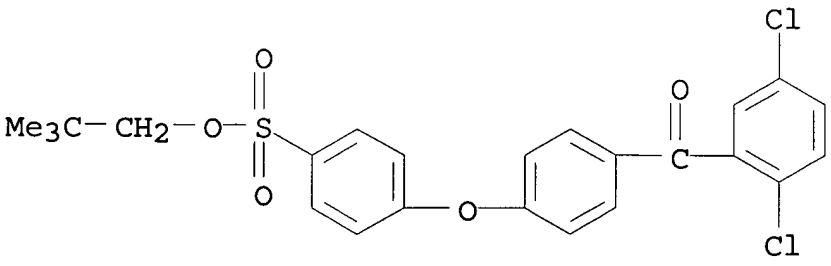
CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



CM 2

CRN 1478-61-1
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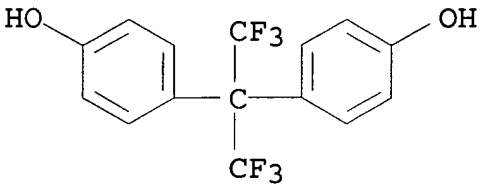
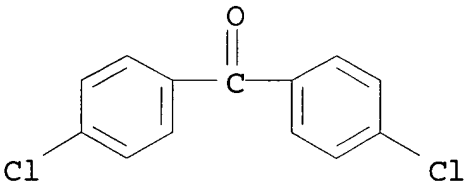


CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **852156-73-1DP**, 2,2-Bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-4,4'-dichloro benzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate block copolymer, hydrogenated
(polymer electrolyte layer; electrochromic displays including polymer electrolyte films and layers coloring by oxidn. or redn.)

L17 ANSWER 2 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:1176409 Document No. 143:408270 Manufacture of proton-conductive porous membranes for fabrication of membrane-electrode assemblies. Kawai, Junji; Goto, Kohei; Kanaoka, Osayuki; Asano, Yoichi; Takahashi, Ryoichiro; Iguchi, Masaru (Jsr Ltd., Japan; Honda Motor Co., Ltd.). Jpn. Kokai Tokkyo Koho JP 2005310643 A2 20051104, 35 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2004-128245 20040423.

AB The membranes, comprising ion-conducting component-contg. arom. polymers, show porosity 1-60%. The membranes are manufd. by dissolving the polymers in casting solvents, applying the solns. on

substrates to form thin membranes contg. 10-95% of the casting solvents, and brining the membranes in contact with poor solvents having compatibility with the casting solvents. The membranes show high protonic cond. and good mech. properties, and are useful for fuel cells.

IT **852156-73-1DP**, 2,2-Bis (4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate block copolymer, hydrolyzed
(manuf. of proton-conductive porous membranes for membrane-electrode assemblies)

RN 852156-73-1 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol], block (9CI) (CA INDEX NAME)

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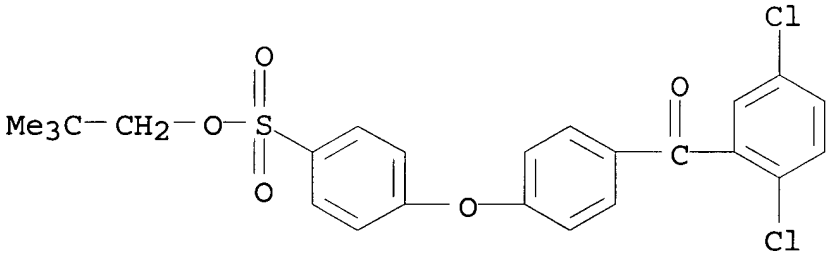
CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



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CRN 1478-61-1
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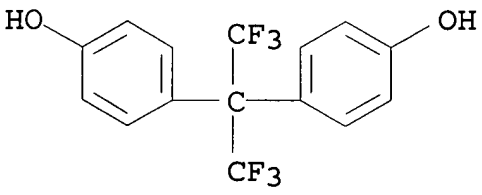
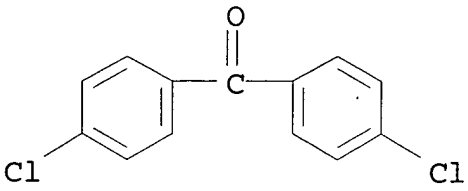


CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **852156-73-1DP**, 2,2-Bis (4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate block copolymer, hydrolyzed
(manuf. of proton-conductive porous membranes for membrane-electrode assemblies)

L17 ANSWER 3 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:1176364 Document No. 143:443517 Low-cost alkaline battery separators with high strength, hydrophilicity, and liquid retention and the alkaline batteries. Onoe, Koichi (Jsr Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005310625 A2 20051104, 16 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2004-127910 20040423.

AB The title separator comprises nonwoven fabric contg. .gtoreq.1 arom. polymers contg. .noteq.1 hydrophilic groups in a mol. that are selected from arom. polysulfones, polyether sulfones, polyether ether sulfones, polyaryl ether sulfones, polyphenylene oxides, poly phenylene sulfides, polyphenylene sulfoxides, poly(p-phenylenes), polyarylenes, polyether ketones, polyether ether ketones, polyether ketone ketones, polybenzoxazoles, polybenzothiazoles, polybenzimidazoles, polyimides, polyamides, and polyamide imides. The hydrophilic groups may esp. be sulfonic acids and/or sulfonic acid salts. Preferably, the polymers are sulfonic acid (salt)-contg. polyarylenes. Alk. batteries comprising the separators, cathodes, and anodes are also claimed.

IT **868663-22-3P**
(strong nonwoven fabric low-cost alk. battery separators contg. arom. polymers contg. hydrophilic groups showing high liq. retention and hydrophilicity)

RN 868663-22-3 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone, (2,5-dichloro-4-phenoxyphenyl)(4-phenoxyphenyl)methanone and

4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

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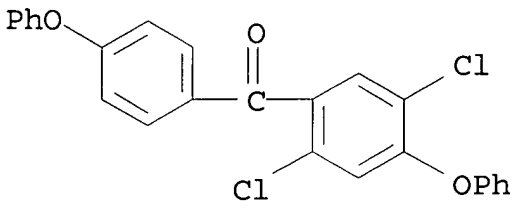

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CRN 663920-26-1
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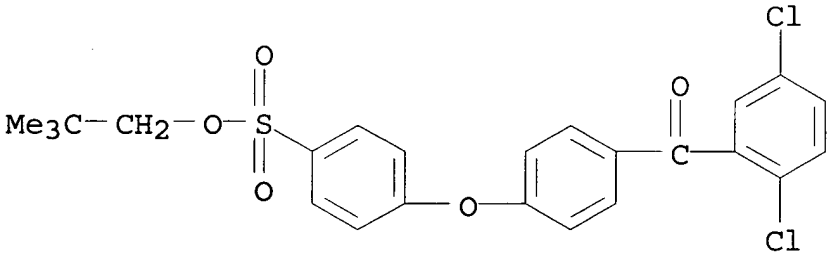

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CRN 1478-61-1
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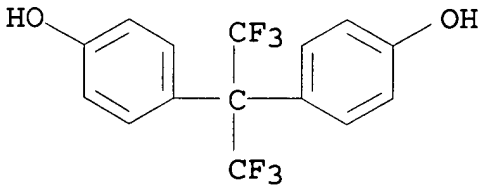

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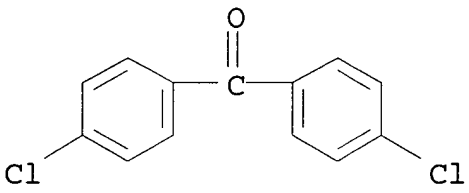
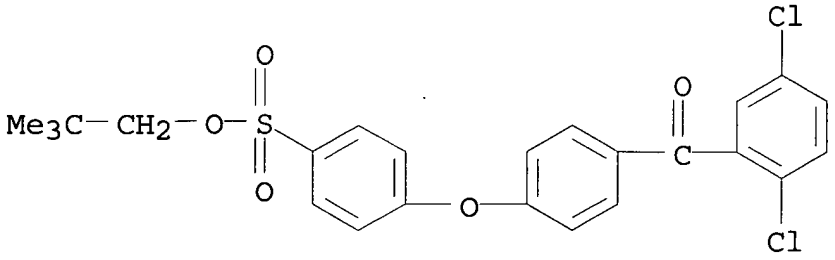


IT **868663-22-3P**
(strong nonwoven fabric low-cost alk. battery separators contg. arom. polymers contg. hydrophilic groups showing high liq. retention and hydrophilicity)

L17 ANSWER 4 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:1176316 Document No. 143:441575 Polymeric antistatic agents showing good water resistance. Ogami, Koichi; Otsuki, Toshitaka (Jsr Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005307072 A2 20051104, 14 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2004-127909 20040423.
AB The agents, useful for paper, fibers, wood, polymeric materials, etc., comprise arom. polymers bearing hydrophilic groups chosen from polysulfones, polyphenylene oxides, polyphenylene sulfoxides, poly(p-phenylenes), polyarylenes, etc. Thus, bis(4-fluorophenyl)sulfone was polymd. with bis(4-hydroxyphenyl)sulfone and 4,4'-biphenol, sulfonated with H2SO4, and neutralized with NaOH to give a copolymer. A film comprising the copolymer showed surface intrinsic resistivity 7 .times. E10 and 8 .times. E10 .OMEGA./.box. before and after soaking in water for 10 min.
IT **852156-73-1P**, 2,2-Bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate block copolymer
(antistatic agents comprising polymers bearing hydrophilic groups and showing good water resistance)
RN 852156-73-1 ZCAPLUS
CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol], block (9CI) (CA INDEX NAME)

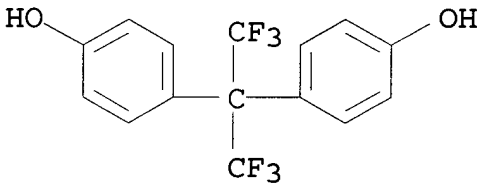
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



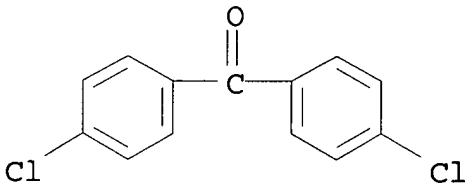
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **852156-73-1P**, 2,2-Bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate block copolymer

(antistatic agents comprising polymers bearing hydrophilic groups and showing good water resistance)

L17 ANSWER 5 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:1174496 Document No. 143:423397 Polymeric antistatic agents showing good water resistance. Ogami, Koichi; Otsuki, Toshitaka (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005307014 A2 20051104, 14 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2004-126245 20040422.

AB The agents, useful for paper, fibers, wood, polymeric materials, etc., comprise arom. polymers bearing hydrophilic groups chosen from polysulfones, polyphenylene oxides, polyphenylene sulfoxides, poly(p-phenylenes), polyarylenes, etc. Thus, bis(4-fluorophenyl)sulfone was polymd. with bis(4-hydroxyphenyl)sulfone and 4,4'-biphenol, sulfonated with H2SO4, and neutralized with NaOH to give a copolymer. A film comprising the copolymer showed surface intrinsic resistivity 7 .times. E10 and 8 .times. E10 .OMEGA./.box. before and after soaking in water for 10 min.

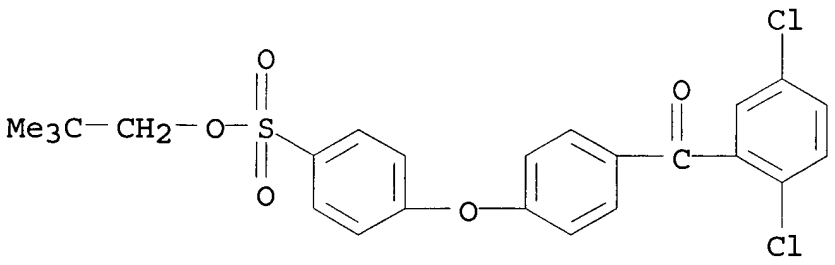
IT **852156-73-1P**, 2,2-Bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate block copolymer
(antistatic agents comprising polymers bearing hydrophilic groups and showing good water resistance)

RN 852156-73-1 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol], block (9CI) (CA INDEX NAME)

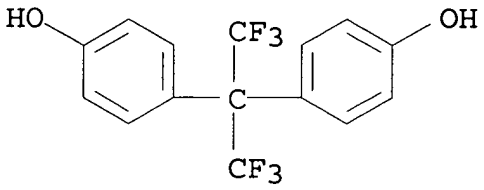
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



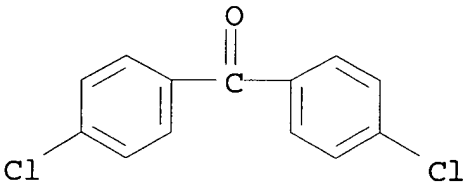
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **852156-73-1P**, 2,2-Bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate block copolymer (antistatic agents comprising polymers bearing hydrophilic groups and showing good water resistance)

L17 ANSWER 6 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:1103231 Document No. 143:389771 Polymer electrolyte fuel cell. Fukuda, Kaoru; Eguchi, Taku; Tsuji, Makoto (Honda Motor Co., Ltd, Japan). U.S. Pat. Appl. Publ. US 2005227138 A1 20051013, 10 pp. (English). CODEN: USXXCO. APPLICATION: US 2005-98425 20050405. PRIORITY: JP 2004-112673 20040407.

AB A polymer electrolyte fuel cell consists of plural units, and the unit has an anode side separator, an anode diffusion layer, an anode catalytic layer, polymer electrolyte membrane, a cathode catalytic layer, a cathode diffusion layer, and a cathode side separator. The cathode catalytic layer further includes a catalyst in which platinum or platinum alloy is supported on a carbon supporting body having an av. lattice space of [002] surface of 0.338 to 0.355 nm and sp. surface area of the supporting body of 80 to 250 m2/g, electrolyte contg. ion exchange resin, and vapor grown carbon fiber.

Furthermore, a water holding layer contg. ion exchange resin, carbon particles, and vapor grown carbon fiber is arranged at an interface of the cathode diffusion layer and the cathode catalytic layer.

IT **866757-04-2DP**, hydrolysis product
(polymer electrolyte fuel cell)

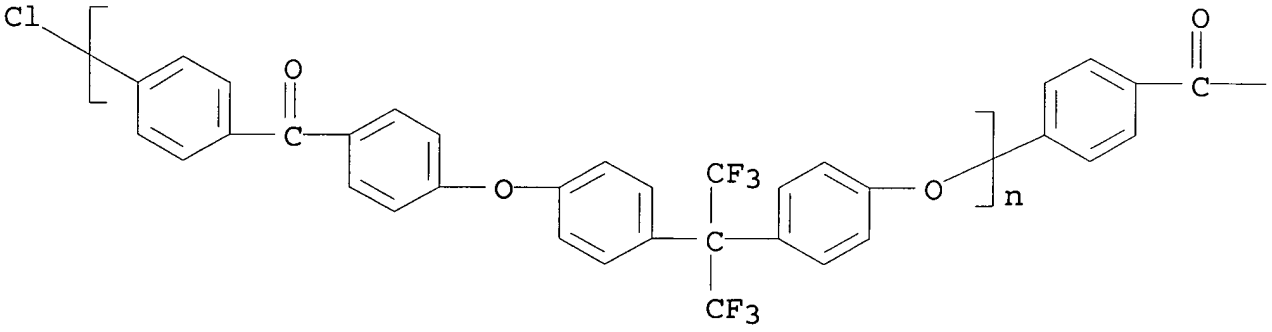
RN 866757-04-2 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2-methylpropyl ester, polymer with .alpha.-[4-(4-chlorobenzoyl)phenyl]-.omega.-chloropoly[oxy-1,4-phenylene[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene] (9CI) (CA INDEX NAME)

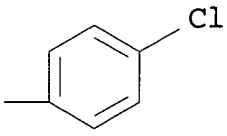
CM 1

CRN 866368-01-6
CMF (C28 H16 F6 O3)n C13 H8 Cl2 O
CCI PMS

PAGE 1-A

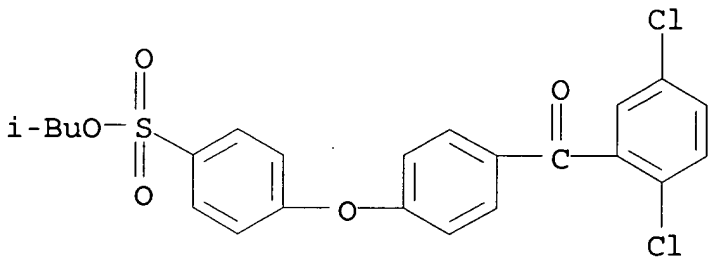


PAGE 1-B

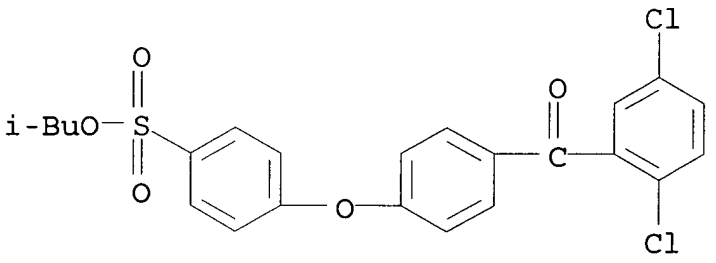


CM 2

CRN 663920-25-0
CMF C23 H20 Cl2 O5 S



IT **663920-25-0P 866757-04-2P**
(polymer electrolyte fuel cell)
RN 663920-25-0 ZCAPLUS
CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2-methylpropyl ester (9CI) (CA INDEX NAME)

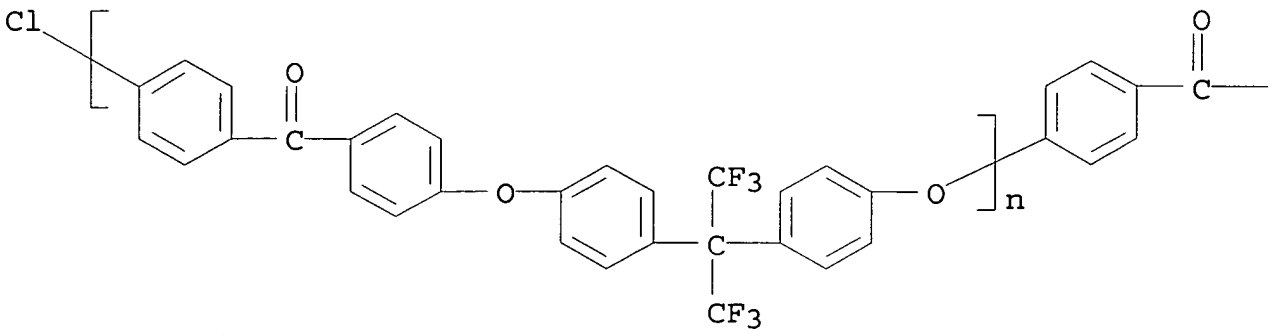


RN 866757-04-2 ZCAPLUS
CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2-methylpropyl ester, polymer with .alpha.-[4-(4-chlorobenzoyl)phenyl]-.omega.-chloropoly[oxy-1,4-phenylene[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene] (9CI) (CA INDEX NAME)

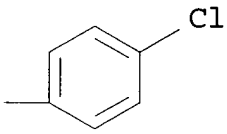
CM 1

CRN 866368-01-6
CMF (C28 H16 F6 O3)n C13 H8 Cl2 O
CCI PMS

PAGE 1-A

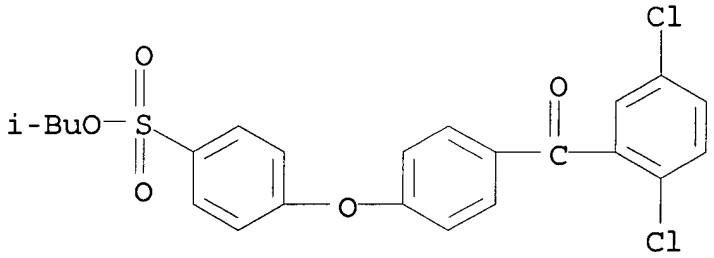


PAGE 1-B



CM 2

CRN 663920-25-0
CMF C23 H20 Cl2 O5 S



IT **866757-04-2DP**, hydrolysis product
(polymer electrolyte fuel cell)
IT **663920-25-0P 866757-04-2P**
(polymer electrolyte fuel cell)

L17 ANSWER 7 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:1023533 Document No. 143:287644 Polymer compositions and their composite membranes with improved hot water resistance. Ogami,

Koichi; Higami, Makoto; Otsuki, Toshitaka; Goto, Kohei (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005255850 A2 20050922, 36 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2004-69371 20040311.

AB The compns. for forming battery electrolytes, fuel cell polymer electrolytes, displays, sensors, capacitors, ion exchanger membranes, etc., contain SO3H-contg. polyarylenes and SO3H-free polymers. The composite membranes using the compns. are also claimed. Thus, bisphenol AF-4,4'-dichlorobenzophenenone oligomer was polymd. with neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzene sulfonate to give a copolymer, which was hydrolyzed and processed to give a SO3H-contg. polyarylene. Then, the polyarylene, JSR N 230S (acrylonitrile-butadiene copolymer), and a solvent were mixed, cast on a glass plate, and dried to give a composite film showing tensile strength 96 MPa, proton cond. 0.29 .OMEGA.-cm, and high hot water resistance.

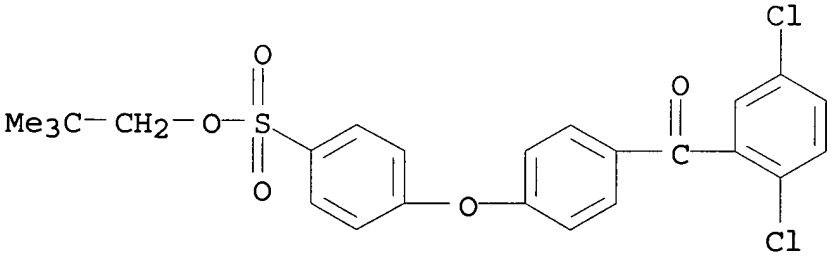
IT **852156-73-1DP**, 2,2-Bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate block copolymer, hydrolyzed
(sulfo-contg. polyarylene-sulfo-free polymer blends for composite membranes with improved hot water resistance)

RN 852156-73-1 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol], block (9CI) (CA INDEX NAME)

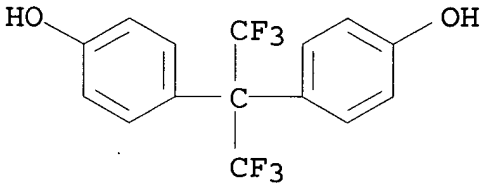
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



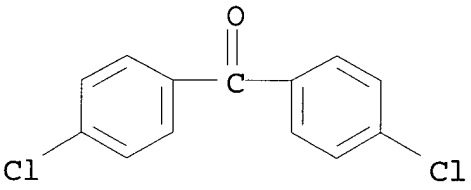
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **852156-73-1DP**, 2,2-Bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate block copolymer, hydrolyzed
(sulfo-contg. polyarylene-sulfo-free polymer blends for composite membranes with improved hot water resistance)

L17 ANSWER 8 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:1003296 Document No. 143:287563 Polyarylene compositions for proton conducting membranes with good proton conductivity at low temperature. Konno, Yosuke; Kawai, Junji; Goto, Kohei (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005248128 A2 20050915, 35 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2004-64330 20040308.
AB Title compns. comprise sulfonic acid-contg. polyarylenes dissolved in .gtoreq.2 org. solvent mixts., wherein each solvent cannot dissolve the sulfonic acid-contg. polyarylenes but a mixt. of .gtoreq.2 org. solvents can dissolve the polymers. Thus, 39.52 g neopentyl 4-[4-(2,5-dichlorobenozyl)phenoxy]benzenesulfonate and 17.08 g 2,2-bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-4,4'-dichlorobenzophenone copolymer with Mn 11,200 were polymd. in the presence of bis(triphenylphosphine) nickel dichloride, triphenylphosphine, sodium iodide, and zinc powder at 74.degree. for 3 h to give a copolymer with Mn 53,500, 4.09 g of which was reacted

with 35 mL trifluoroacetic acid for 4 h under mild reflux condition, 4 g of the resulting sulfonic acid-contg. polyarylene was dissolved in 14.7 g cyclohexanol and 14.7 g anisole, applied on a polyethylene terephthalate film, dried at 80.degree. for 30 min and 120.degree. for 60 min to give a polymer electrolyte, showing proton cond. 2.5 .times. 10-2 .OMEGA.-cm at 85.degree., 1.8 .times. 10-2 .OMEGA.-cm at 25.degree., 9.0 .times. 10-3 .OMEGA.-cm at 0.degree., and 3.8 .times. 10-3 .OMEGA.-cm at -20.degree..

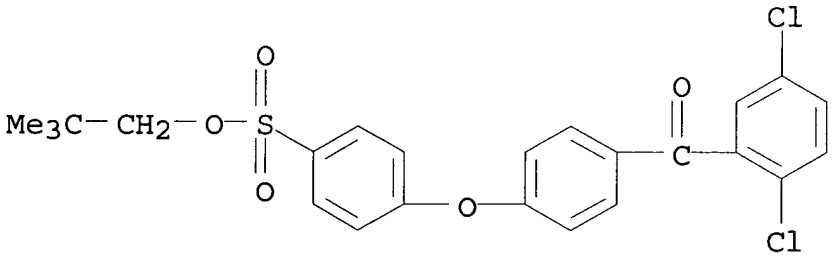
IT **663920-28-3P**
(composed of actual and assumed monomers, intermediate; polyarylene compns. for proton conducting membranes with good proton cond. at low temp.)

RN 663920-28-3 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

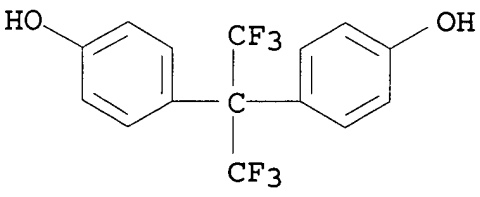
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



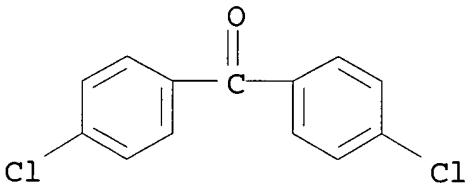
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

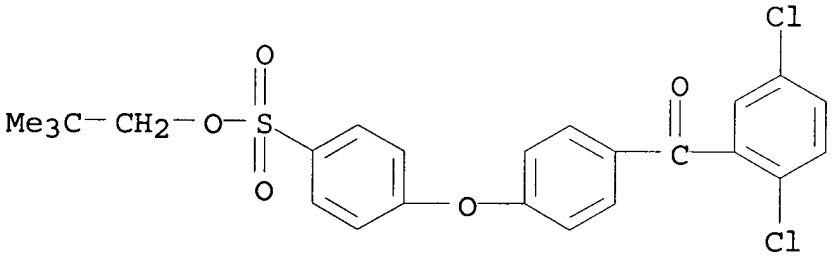
CRN 90-98-2
CMF C13 H8 Cl2 O



IT **663920-28-3DP**, deprotected
(composed of actual and assumed monomers; polyarylene compns. for proton conducting membranes with good proton cond. at low temp.)
RN 663920-28-3 ZCAPLUS
CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

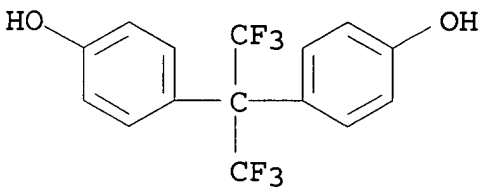
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



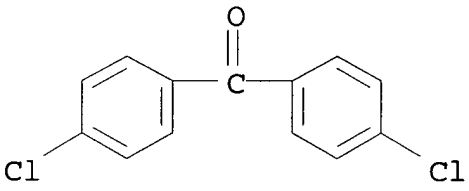
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **663920-28-3P**
(composed of actual and assumed monomers, intermediate; polyarylene compns. for proton conducting membranes with good proton cond. at low temp.)
IT **663920-28-3DP**, deprotected
(composed of actual and assumed monomers; polyarylene compns. for proton conducting membranes with good proton cond. at low temp.)

L17 ANSWER 9 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:1000854 Document No. 143:287520 Sulfonate group-containing polyarylene proton conductive composite membrane and production method thereof. Ogami, Koichi; Otsuki, Toshitaka; Masaka, Fusato; Naito, Yuji; Iguchi, Masaru; Kanaoka, Osayuki; Asano, Yoichi; Mitsuda, Naoki; Soma, Hiroshi (JSR Ltd., Japan; Honda Motor Co., Ltd.). Jpn. Kokai Tokkyo Koho JP 2005246800 A2 20050915, 33 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2004-61049 20040304.
AB Title sulfonate group-contg. polyarylene proton conductive laminate comprises at least 2 layers having different ion exchange capacity. Thus, a SO3H-contg. polyarylene was prepd. by polymg. bisphenol AF-4,4'-dichlorobenzophenenone oligomer with neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate and thermally hydrolyzed. The composite film prepd. from the polyarylene showed ion exchange capacity 2.4 meq/g (layer 1 = 1.6 meq/g and layer 2 3.1 meq/g), tensile strength 98 MPa, proton cond. 0.29 .OMEGA..bul.cm, and high hot water resistance.

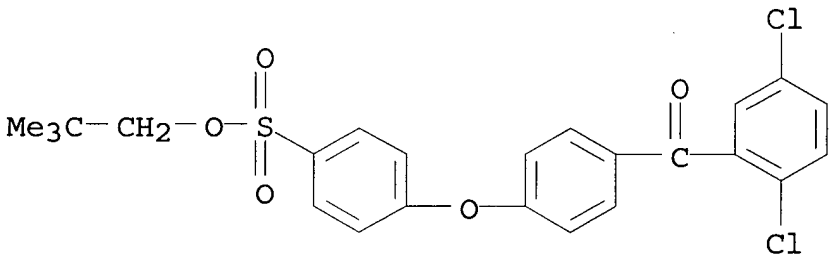
IT **852156-73-1DP**, hydrolyzed
(prodn. of sulfonate group-contg. polyarylene proton conductive composite membrane)

RN 852156-73-1 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol], block (9CI) (CA INDEX NAME)

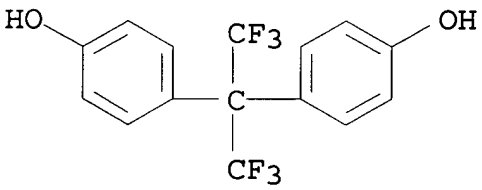
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



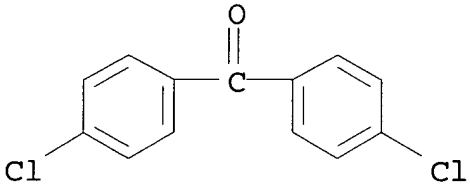
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **852156-73-1DP**, hydrolyzed
(prodn. of sulfonate group-contg. polyarylene proton conductive composite membrane)

L17 ANSWER 10 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:982661 Document No. 143:249491 Sulfo-containing polyarylenes, their manufacture, and their proton-conducting membranes. Takasugi, Shingo; Otsuki, Toshitaka; Masaka, Fusato; Naito, Yuji; Goto, Kohei; Ogami, Koichi (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005239833 A2 20050908, 35 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2004-50064 20040225.

AB The polyarylenes with low metal content for fuel cell electrolytes, battery electrolytes, displays, sensors, capacitors, ion-exchange membranes, etc., satisfy (1) each metal content .ltoreq.100 ppm or (2) content of Fe, Ni, Cr, Zn, Na, and Ca .ltoreq.100 ppm each. The polyarylenes are manufd. by (A) adding org. acids to solns. of sulfonic acid ester-contg. polyarylenes, (B) hydrolyzing the ester groups to give sulfonic acid groups, and (C) casting the resulting sulfo-contg. polyarylene solns. to poor solvents of the polymers for pptn. and recovery. Alternatively, solns. of sulfonic acid group-contg. polyarylenes are used instead of the ester-contg. polyarylenes in the step A followed by the step C while omitting the step B. Thus, a copolymer prepd. from bisphenol AF-4,4'-dichlorobenzophenone oligomer and neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate was stirred with oxalic acid, heated, mixed with a MeOH-HCl mixt., and cast in MeOH to recover a SO3H-contg. polymer having contents of Na, Ca, Fe, Zn, Ni, and Cr .ltoreq.1, .ltoreq.1, 12, 8, 5, and 7 ppm, resp.

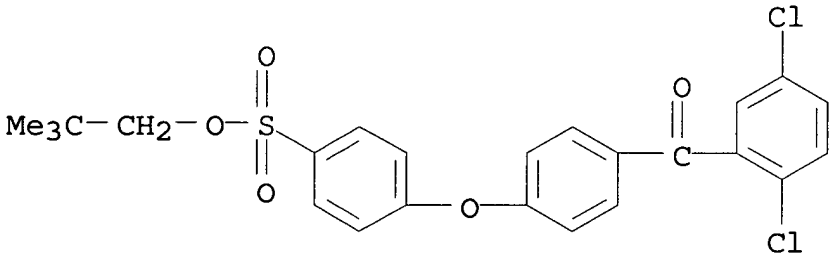
IT **852156-73-1DP**, 2,2-Bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate block copolymer, hydrolyzed
(sulfo-contg. polyarylenes with limited metal content and their manuf. for proton-conducting membranes)

RN 852156-73-1 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol], block (9CI) (CA INDEX NAME)

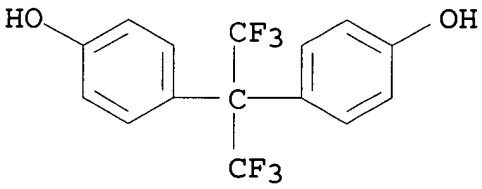
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



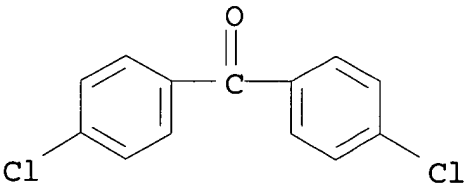
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **852156-73-1DP**, 2,2-Bis(4-hydroxyphenyl)-1,1,1,3,3,3-

hexafluoropropane-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate block copolymer, hydrolyzed
(sulfo-contg. polyarylenes with limited metal content and their manuf. for proton-conducting membranes)

L17 ANSWER 11 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:822449 Document No. 143:212816 Sulfonated polyarylene-containing compositions and proton-conductive films with high rigidity therefrom. Ogami, Koichi; Otsuki, Toshitaka; Kanaoka, Osayuki; Asano, Yoichi; Iguchi, Masaru; Mitsuda, Naoki; Soma, Hiroshi (JSR Ltd., Japan; Honda Motor Co., Ltd.). Jpn. Kokai Tokkyo Koho JP 2005220193 A2 20050818, 32 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2004-28065 20040204.

AB The compns. contain two or more of polymers with different ion exchanging capacity, having repeating unit (A) C6H3Y(C6H3Z)m[C6H4-k(SO3H)kZ]nAr (Y = bivalent electron-withdrawing group (EWG); Z = bivalent EWG or direct bond; Ar = sulfo-contg. arom. group; m, n = 0-10; k = 1-4) and (B) (C6R1R2R3R4WC6R5R6R7R8T)pC6R5R6R7R8WC6R1R2R3R4 (R1-R8 = H, F, alkyl, aryl, allyl, aryl, cyano; W = bivalent EWG or direct bond; T = direct bond, bivalent org. group; p = 0, pos. integer), where one or more of the polymers satisfy p .gtoreq.2 in the unit B. Thus, bisphenol AF was oligomerized with equimolar 4,4'-dichlorobenzophenone in DMAc at 130.degree. and condensed with neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate at 75.degree. in the presence of PPh3, Zn, and a Ni complex, and hydrolyzed in the presence of HCl to give a polyarylene having sulfonate group and GPC-detd. Mn 53,200 and Mw 185,000, which was blended with a polyarylene synthesized from the same monomers as above at different monomer ratio, dissolved in NMP, cast on a substrate, and dried to give a proton-conductive membrane showing tensile strength 99 MPa, elastic modulus 3.1 GPa, proton cond. 0.30 .OMEGA.-cm, and wt. retention 95% after immersion in 120.degree. water.

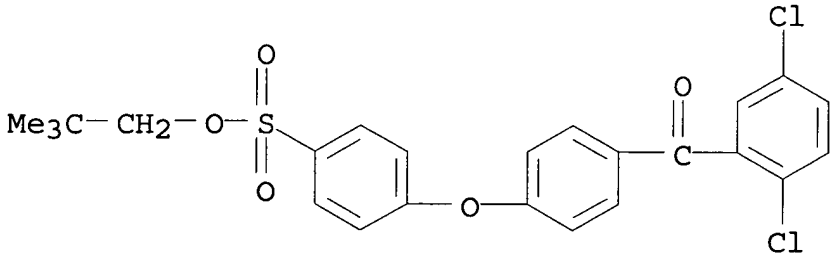
IT **663920-28-3DP**, hydrolyzed
(sulfonated polyarylene blend compns. forming proton-conductive membranes with high rigidity)

RN 663920-28-3 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

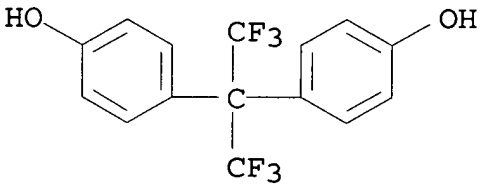
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



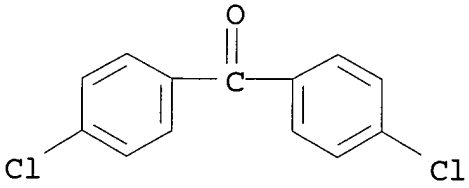
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **663920-28-3DP**, hydrolyzed
(sulfonated polyarylene blend compns. forming proton-conductive membranes with high rigidity)

L17 ANSWER 12 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:822305 Document No. 143:194868 Manufacture of sulfonic acid group-containing polyarylene films with good mechanical properties.

Sakakura, Yasuhiro; Kita, Kiyonori; Naito, Yuji (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005219284 A2 20050818, 34 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2004-28071 20040204.

AB The films are manufd. by applying compns. contg. sulfonic acid group-contg. polyarylenes and org. solvents on substrates, sepg. the resulting films from the substrates, and stretching the films in water. Thus, a sulfonic acid group-contg. polyarylene prepd. from 2,2-bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane, 4,4'-dichlorobenzophenone, neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate was dissolved in MeOH-NMP mixed solvent, applied on a PET (HSL 125) film, dried, sepd. from the PET film, and uniaxially 1.1-fold stretched in water to give a film with protonic cond. 0.32 S/cm and good dimensional stability after heat treatment.

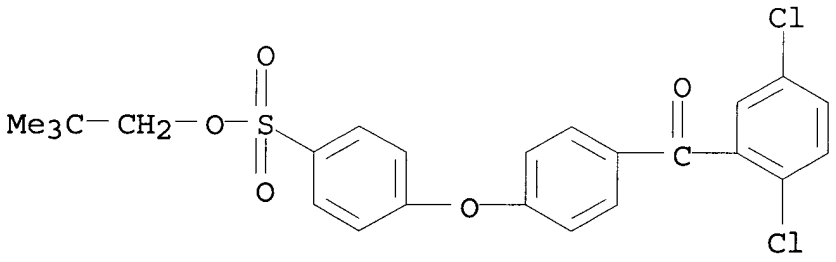
IT **852156-73-1DP**, 2,2-Bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesu lfonate block copolymer, hydrolyzed
(manuf. of sulfonic acid group-contg. polyarylene films with good mech. properties)

RN 852156-73-1 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol], block (9CI) (CA INDEX NAME)

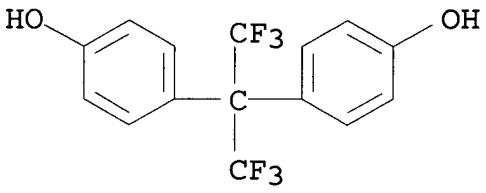
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



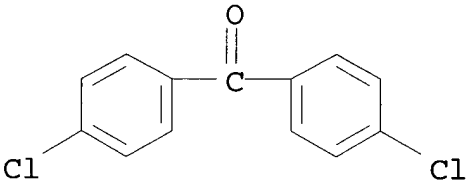
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **852156-73-1DP**, 2,2-Bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesu lfonate block copolymer, hydrolyzed
(manuf. of sulfonic acid group-contg. polyarylene films with good mech. properties)

L17 ANSWER 13 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:822304 Document No. 143:194867 Manufacture of sulfonic acid group-containing polyarylene films with good mechanical properties. Sakakura, Yasuhiro; Masaka, Fusato; Naito, Yuji (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005219283 A2 20050818, 34 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2004-28070 20040204.

AB The films are manufd. by applying compns. contg. sulfonic acid group-contg. polyarylenes and org. solvents on substrates, sepg. the resulting films from the substrates, and stretching the films. Thus, a sulfonic acid group-contg. polyarylene prepd. from 2,2-bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane, 4,4'-dichlorobenzophenone, neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate was dissolved in MeOH-NMP mixed solvent, applied on a PET (HSL 125) film, dried, sepd. from the PET film, and uniaxially 1.1-fold stretched to give a film with protonic cond. 0.32 S/cm, haze 5%, and good dimensional stability after heat treatment.

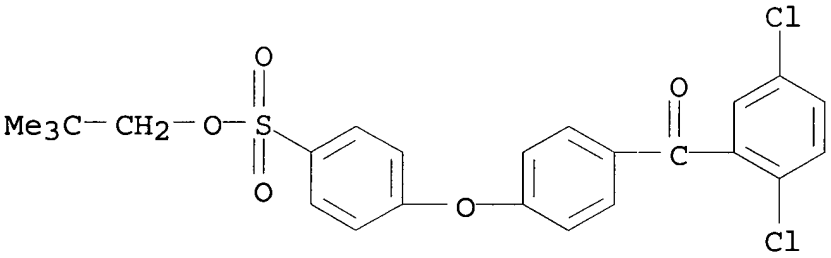
IT **852156-73-1DP**, 2,2-Bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesu lfonate block copolymer, hydrolyzed
(manuf. of sulfonic acid group-contg. polyarylene films with good mech. properties)

RN 852156-73-1 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol], block (9CI) (CA INDEX NAME)

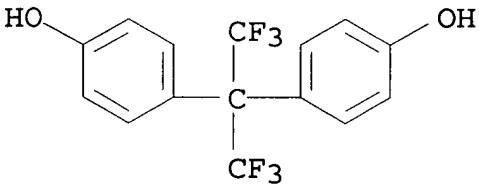
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



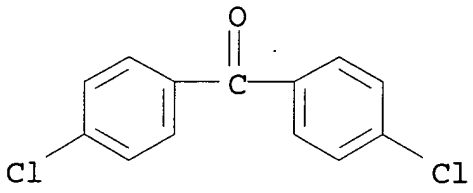
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **852156-73-1DP**, 2,2-Bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesu lfonate block copolymer, hydrolyzed
(manuf. of sulfonic acid group-contg. polyarylene films with good mech. properties)

L17 ANSWER 14 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:813661 Document No. 143:194862 Manufacture of sulfonic acid group-containing polyarylene films with good mechanical properties. Sakakura, Yasuhiro; Naito, Yuji (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005219282 A2 20050818, 34 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2004-28069 20040204.

AB The films are manufd. by applying compns. contg. sulfonic acid group-contg. polyarylenes and org. solvents on substrates, uniaxially or biaxially stretching the coated substrates, and heating the substrates under stretching. Thus, a sulfonic acid group-contg. polyarylene prepd. from 2,2-bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane, 4,4'-dichlorobenzophenone, neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate was dissolved in MeOH-NMP mixed solvent, applied on a PET (HSL 125) film, dried, uniaxially 2.0-fold stretched, heated at 140.degree. for 60 min under stretching, and sepd. from the PET film to give a film with protonic cond. 0.32 S/cm and good dimensional stability after heat treatment.

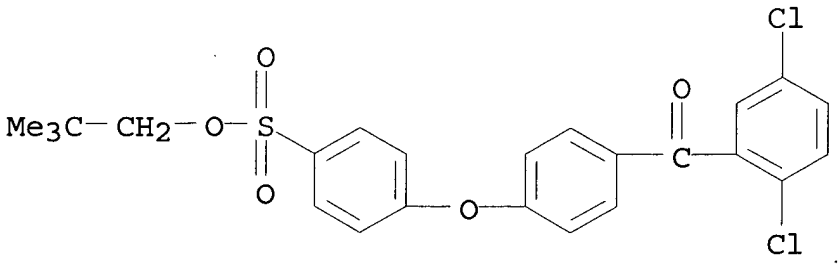
IT **852156-73-1DP**, 2,2-Bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesu lfonate block copolymer, hydrolyzed
(manuf. of sulfonic acid group-contg. polyarylene films with good mech. properties)

RN 852156-73-1 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol], block (9CI) (CA INDEX NAME)

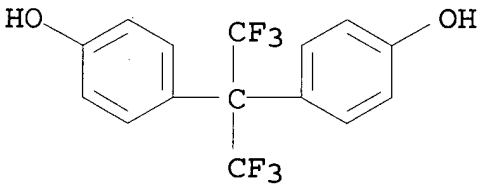
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



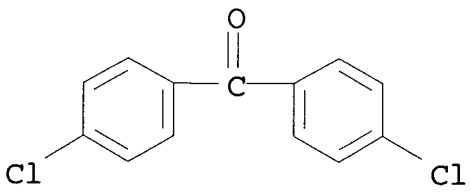
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **852156-73-1DP**, 2,2-Bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesu lfonate block copolymer,

hydrolyzed
(manuf. of sulfonic acid group-contg. polyarylene films with good mech. properties)

L17 ANSWER 15 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:811168 Document No. 143:212799 Polyelectrolyte composite membranes with low resistivity and high strength and manufacture thereof. Higami, Makoto; Otsuki, Toshitaka; Kanaoka, Hisayuki; Asano, Yoichi; Takahashi, Ryoichiro (JSR Ltd., Japan; Honda Motor Co., Ltd.). Jpn. Kokai Tokkyo Koho JP 2005222736 A2 20050818, 33 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2004-27089 20040203.

AB The membranes, useful for fuel cell separators (no data), comprise (i) polyarylenes possessing unit (A) C6H3[A(C6H4B)m[C6H4-k(SO3H)k]nAr and unit (B) C6R1r2R3R4WC6R5R6R7R8T)pCR5R6R7R8WC6R1R2R3R4 (R1-R8 = H, F, alkyl, aryl, etc.; W = bivalent electron-withdrawing group, single bond; T = single bond, bivalent org. group; p .gtoreq.2 integer) and (ii) fibrous reinforcements. The membranes are manufd. by impregnating the reinforcements with solns. of the polyarylenes and drying. Otherwise, compns. of the polyarylens and fibril-like reinforcements are applied on substrates and dried to be unsupported membranes. Thus, bisphenol AF was oligomerized with equimolar 4,4'-dichlorobenzophenone at 130.degree. and condensed with neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]sulfonate at 75.degree. in the presence of PPh3, and hydrolyzed in the presence of HCl to give a polyarylene having sulfonate group, which was blended with HDPE fibrils and dild. with NMP, applied on a PET film, dried, and released from the film to give a 15-.mu.m-thick unsupported film showing elastic modulus 4.0 GPa, breaking strength 88 MPa, elongation 40%, and elec. resistivity 0.016 .OMEGA.-cm2.

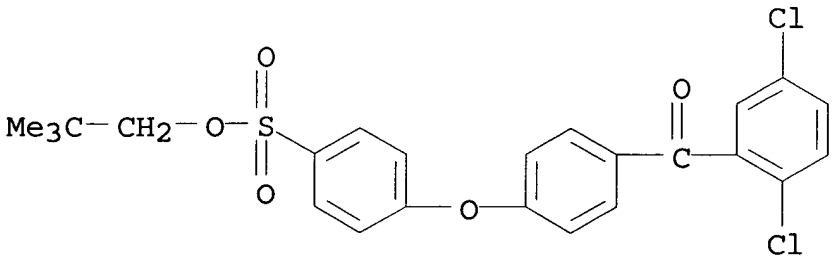
IT **663920-28-3DP**, hydrolyzed
(fiber-reinforced; manuf. of fiber-reinforced sulfonyl-contg. polyarylene membranes as fuel cell separators)

RN 663920-28-3 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

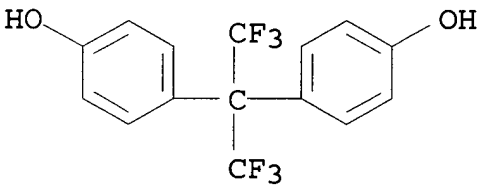
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



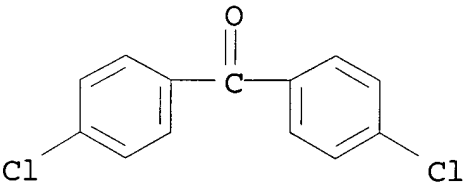
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O

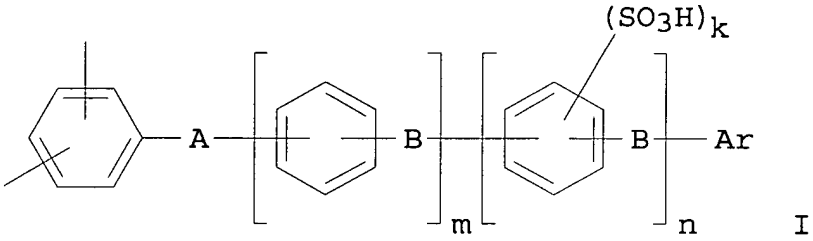


IT **663920-28-3DP**, hydrolyzed
(fiber-reinforced; manuf. of fiber-reinforced sulfonyl-contg. polyarylene membranes as fuel cell separators)

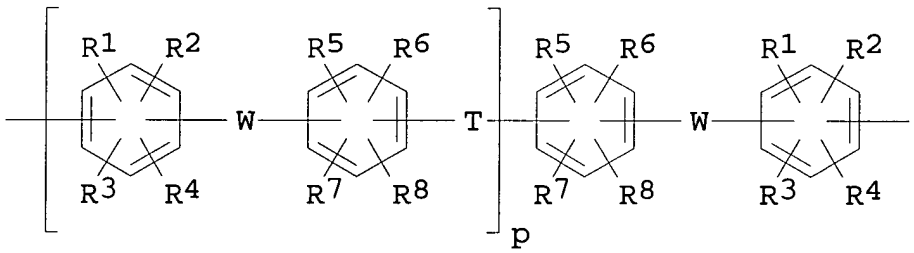
L17 ANSWER 16 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:726411 Document No. 143:214315 Laminated membrane and its manufacture. Takasugi, Shingo; Otsuki, Toshitaka; Komatsu, Satoshi;

Naito, Yuji; Goto, Kohei; Kaneoka, Takeyuki; Asano, Yoichi; Iguchi, Masaru; Mitsuda, Naoki; Soma, Hiroshi (JSR Ltd., Japan; Honda Motor Co., Ltd.). Jpn. Kokai Tokkyo Koho JP 2005216613 A2 20050811, 32 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2004-20141 20040128.

GI



I



II

AB The membrane, useful for fuel cell electrolyte, contains .gtoreq.2 H+ conducting films of polymers free of perfluoroalkyl groups, with .gtoreq.1 of the films being a sulfonic acid group contg. polyarylene. Preferably the polyarylene has repeating structure units I (A = bivalent electron withdrawing group, B = bivalent electron donating group or a direct bond, Ar = SO3H contg. arom. group, m = integer 0-10, n = integer 0-10, k = integer 1-4) and II [R1-8 = H, F, (fluorinated) alkyl, allyl, aryl, or cyano groups; W = bivalent electrode withdrawing group or a single bond; T = a single bond or a bivalent org. group, p = integer >0]. The laminated membrane is prepd. by laminating required films using a soln. of a perfluoroalkyl group free H+ conducting polymer in an alc. or aprotic solvent as binder.

IT **663920-28-3P**
(compns. and manuf. of laminated proton conducting perfluoroalkyl group free polymer membranes for fuel cell electrolytes)

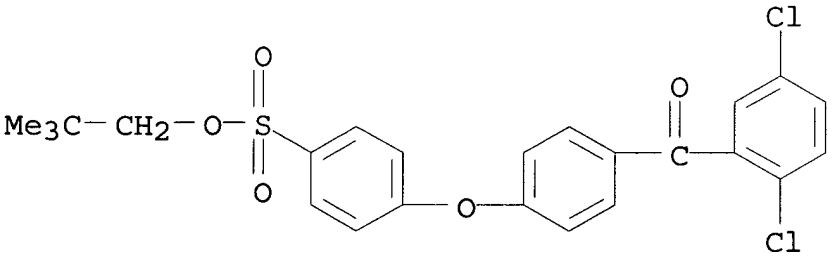
RN 663920-28-3 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-,

2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

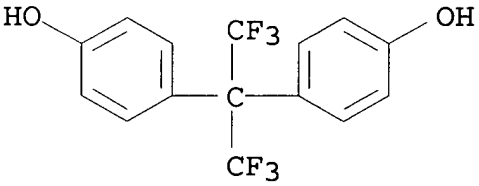
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



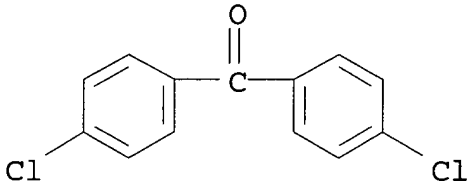
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **663920-28-3P**
(compns. and manuf. of laminated proton conducting perfluoroalkyl group free polymer membranes for fuel cell electrolytes)

L17 ANSWER 17 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:726203 Document No. 143:174384 Polyarylene compositions and their uses in electrolytes and proton-conductive membranes. Moden, Toshiaki; Otsuki, Toshitaka; Okada, Takashi; Yamakawa, Yoshitaka; Kaneoka, Takeyuki; Asano, Yoichi; Iguchi, Masaru; Mitsuda, Naoki; Soma, Hiroshi (JSR Ltd., Japan; Honda Motor Co., Ltd.). Jpn. Kokai Tokkyo Koho JP 2005213325 A2 20050811, 35 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2004-20139 20040128.

AB The compns with high oxidn. resistance, proton cond., strength, and elasticity for battery and fuel cell electrolytes, ion exchange membranes, sensors, capacitors, displays, etc., contain (1) sulfo-contg. polyarylenes prepd. by hydrolyzing sulfonate ester-contg. polyarylenes represented by C6H3X2A[C6H4B]m[C6H4-k(SO3Ra)kB]nAr (X = F-free halo, OSO3Me, OSO3CF3; A = divalent electron-withdrawing group; B = divalent electron-donating group, direct bond; m, n = 0-10; k = 1-4; Ra = C4-20 hydrocarbyl; Ar = SO3Rb; Rb C4-20 hydrocarbyl) and (2) additives of hindered phenols, hindered amines, org. P compds., and/or org. S compds. Thus, bisphenol AF-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate copolymer was prepd. and hydrolyzed to give SO3H-contg. polyarylene, which was mixed with a solvent and Irganox 1330 [1,3,5-trimethyl-2,4,6-tris(3,5-di-tert-butyl-4-hydroxybenzyl)benzene]. The resulting soln. was applied on a substrate, dried, heated, and processed to give a membrane showing high proton cond. and breaking strength.

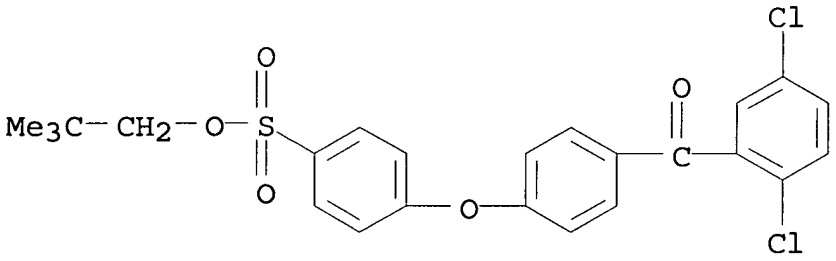
IT **663920-28-3DP**, Bisphenol AF-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate copolymer, hydrolyzed
(sulfo-contg. polyarylene compns. contg. additives for electrolytes and proton-conductive membranes)

RN 663920-28-3 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

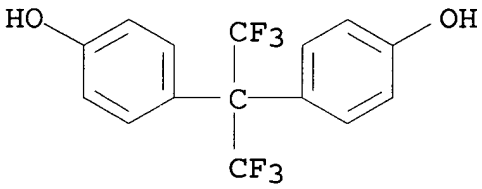
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



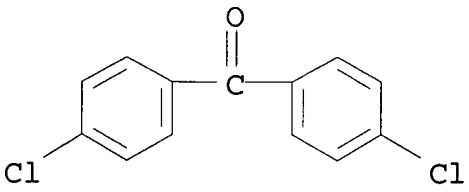
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **663920-28-3DP**, Bisphenol AF-4,4'-dichlorobenzophenone-

neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate copolymer, hydrolyzed
(sulfo-contg. polyarylene compns. contg. additives for electrolytes and proton-conductive membranes)

L17 ANSWER 18 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:726095 Document No. 143:174374 Proton-conductive composite films and their manufacture. Takasugi, Shingo; Otsuki, Toshitaka; Masaka, Fusato; Naito, Yuji; Goto, Kohei; Kanaoka, Osayuki; Asano, Yoichi; Iguchi, Masaru; Mitsuda, Naoki; Soma, Hiroshi (JSR Ltd., Japan; Honda Motor Co., Ltd.). Jpn. Kokai Tokkyo Koho JP 2005212213 A2 20050811, 33 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2004-20140 20040128.

AB The composite films consist of a film of polyarylenes having C6H3A(C6H4B)m[C6H4-k(SO3H)kB]nAr (A = bivalent electron attractive group; B = bivalent electron donative group, direct bond; Ar = SO3H-substituted arom. group; m, n = 0-10; k = 1-4) and a film of tetrafluoroethylene copolymers having proton cond. and are manufd. by applying alc. soln. of proton-conductive tetrafluroethylene copolymers and/or alc. or aprotic polar solvent soln. of sulfonic acid group-contg. polyarylenes on at least one bonding surface of the films, followed by laminating them. Thus, 67.3 g bisphenol AF was treated with 60.3 g 4,4'-dichlorobenzophenone (I) in AcNMe2 and PhMe in the presence of K2CO3 and further treated with 10.0 g I to give 95 g oligomer, 15.23 g of which was polymd. with 39.58 g neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate in N-methyl-2-pyrrolidone (NMP) in the presence of Ni(PPh3)2Cl2, PPh3, NaI, and Zn, and hydrolyzed to give a sulfonic acid group-contg. polyarylene copolymer. A Nafion (polymer electrolyte) soln. was applied on a PET film, dried, coated with a 10% NMP soln. of the polyarylene copolymer, dried, covered by a film of the polyarylene copolymer, and hot-pressed to give a composite film showing size change 7664-93-9115% after 24 h in 120.degree. water, elastic modulus 3.0 GPa, and proton cond. 0.190 S/cm at 85.degree. and relative humidity 90%.

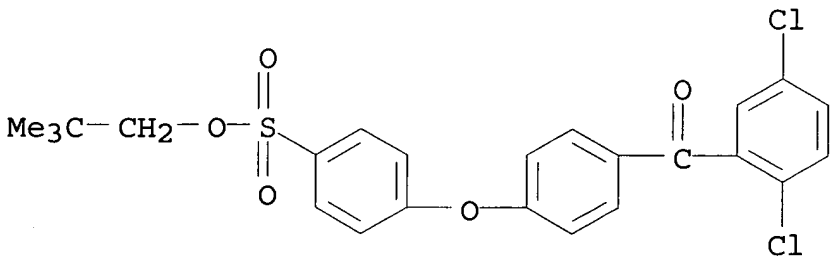
IT **663920-28-3DP**, Bisphenol AF-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate copolymer, hydrolyzed
(manuf. of proton-conductive composite films with good dimensional stability and modulus)

RN 663920-28-3 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

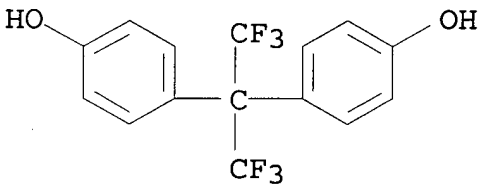
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



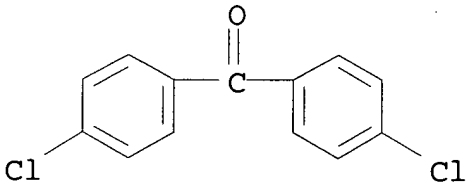
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **663920-28-3DP**, Bisphenol AF-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate copolymer, hydrolyzed
(manuf. of proton-conductive composite films with good

dimensional stability and modulus)

L17 ANSWER 19 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:695913 Document No. 143:196813 Cation exchange-anion exchange membrane laminates and their proton conductive membranes for solid polymer electrolyte fuel cells. Konno, Yosuke; Otsuki, Toshitaka (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005209437 A2 20050804, 31 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2004-13067 20040121.

AB The laminates comprise cation exchange membranes comprising polyarylene copolymers having SO3H and anion exchange membranes. The proton conductive membranes are kept wet in the fuel cells without humidifiers because water is generated inside of polymer membranes.

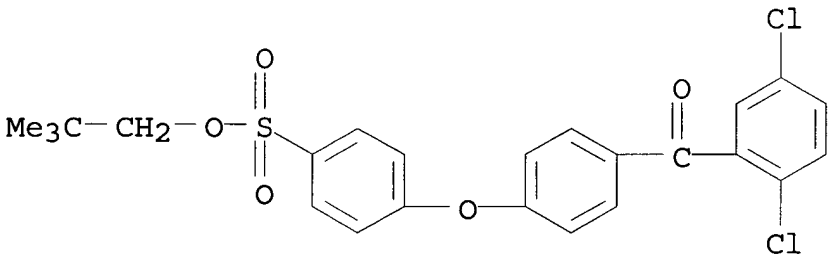
IT **852156-73-1DP**, hydrolyzed
(cation exchange membranes; cation exchanger-anion exchanger laminates for proton conductive membranes for solid polymer electrolyte fuel cells)

RN 852156-73-1 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol], block (9CI) (CA INDEX NAME)

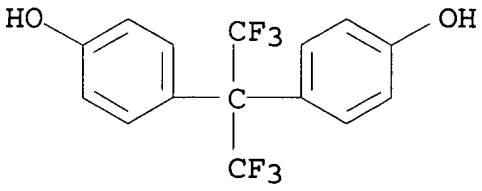
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



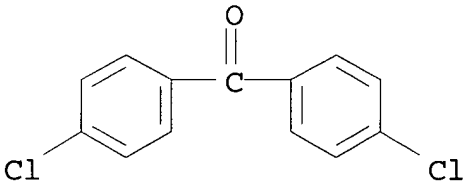
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **852156-73-1DP**, hydrolyzed
(cation exchange membranes; cation exchanger-anion exchanger laminates for proton conductive membranes for solid polymer electrolyte fuel cells)

L17 ANSWER 20 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:666252 Document No. 143:134568 Sulfo-containing polyarylene proton-conductive films and their manufacture. Kawai, Junji; Yamakawa, Yoshitaka; Otsuki, Toshitaka (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005203316 A2 20050728, 33 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2004-10664 20040119.

AB The films, useful for fuel cell electrolytes, contain SO3H-contg. polyarylenes, and low-mol.-wt. acids chosen from phosphoric acids, phosphonic acids, and sulfonic acids. Thus, a .gamma.-butyrolactone soln. contg. 60 g 2,2-bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate block copolymer hydrolyzate and 6 g o-ethylphenylphosphoric acid was cast onto a PET film to give a film showing proton cond. 0.31 S/cm at 100.degree..

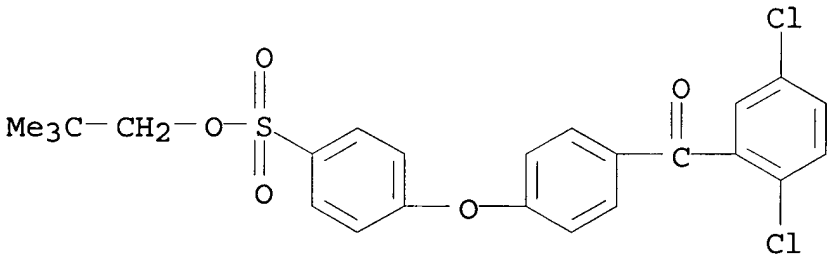
IT **852156-73-1DP**, hydrolyzed
(manuf. of sulfo-contg. polyarylene proton-conductive films for fuel cell electrolytes)

RN 852156-73-1 ZCAPLUS
CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-,

2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol], block (9CI) (CA INDEX NAME)

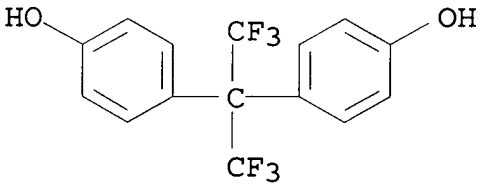
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



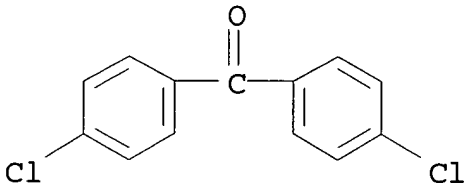
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **852156-73-1DP**, hydrolyzed
(manuf. of sulfo-contg. polyarylene proton-conductive films for fuel cell electrolytes)

L17 ANSWER 21 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:660766 Document No. 143:154553 Organic electrolyte-inorganic electrolyte laminates and their proton-conductive films. Kadota, Toshiaki; Otsuki, Toshitaka (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005203259 A2 20050728, 32 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2004-9078 20040116.

AB The laminates, useful for fuel cell electrolytes, comprise SO3H-contg. polyphenyl electrolytes and inorg. electrolytes showing proton cond. Thus, an NMP soln. contg. 2,2-bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate block copolymer hydrolyzate was cast onto a tungsten phosphosilicate glass film to give a laminate showing proton cond. 0.020 S/cm at 25.degree. and good flexibility.

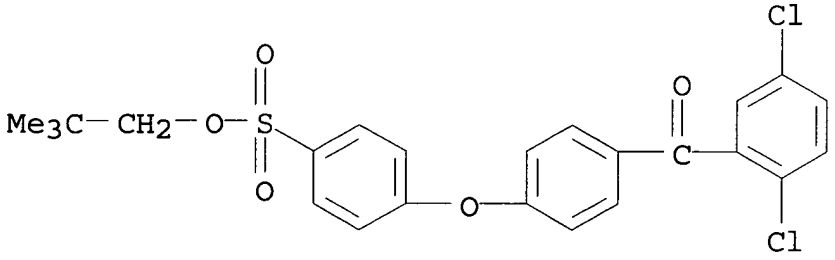
IT **663920-28-3DP**, hydrolyzed
(sulfo-contg. polyphenyl-inorg. electrolyte laminates for proton-conductive films for fuel cell electrolytes)

RN 663920-28-3 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

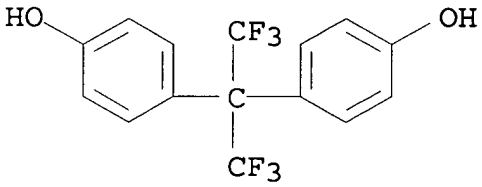
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



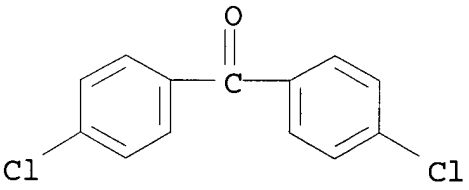
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **663920-28-3DP**, hydrolyzed
(sulfo-contg. polyphenyl-inorg. electrolyte laminates for proton-conductive films for fuel cell electrolytes)

L17 ANSWER 22 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:638265 Document No. 143:156320 Membrane-electrode assemblies showing good low-temperature performance for solid polymer

electrolyte fuel cells, and vehicles and electric apparatus using them. Kanaoka, Osayuki; Mitsuda, Naoki; Hama, Yuichiro; Takahashi, Ryoichiro; Soma, Hiroshi; Iguchi, Masaru; Asano, Yoichi (Honda Motor Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005197236 A2 20050721, 38 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2004-356428 20041209. PRIORITY: JP 2003-410958 20031209.

AB The assemblies have polymeric electrolyte membranes comprising segments A with ion conductive components and segments B without ion conductive components, where the content of water having m.p. from -30.degree. to 0.degree. is 0.01-3.0 g/1 g-polymer absorbed by the membranes after soaking in water at 90.degree. for 30. Preferably, the segments A are SO3H-contg. polyarylenes, and the segments B are polyarylenes. The assemblies suppress drying under low humidity condition or freezing at low temp., resulting in the fuel cells showing good start up performance.

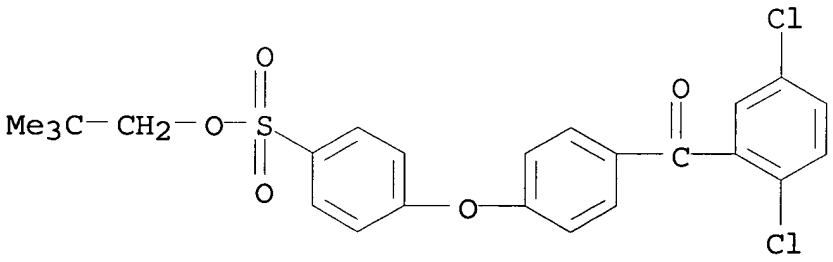
IT **852156-73-1DP**, hydrolyzed **860020-60-6DP**, hydrolyzed
(membrane-electrode assemblies showing good low-temp. performance for solid polymer electrolyte fuel cells for vehicles and elec. app.)

RN 852156-73-1 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol], block (9CI) (CA INDEX NAME)

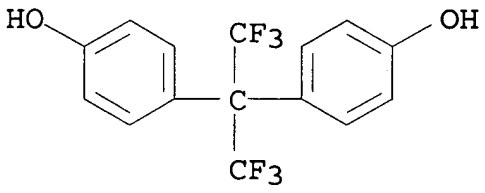
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



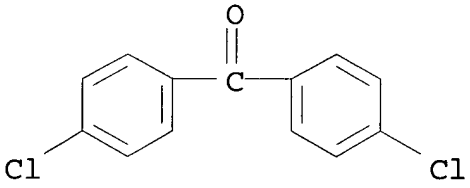
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

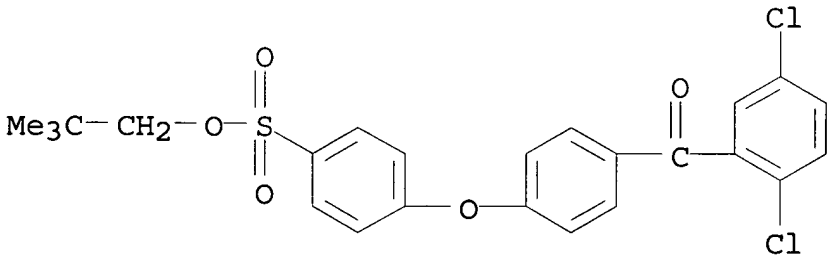
CRN 90-98-2
CMF C13 H8 Cl2 O



RN 860020-60-6 ZCAPLUS
CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-hydroxyphenyl)methanone and 1,1'-sulfonylbis[4-chlorobenzene], block (9CI) (CA INDEX NAME)

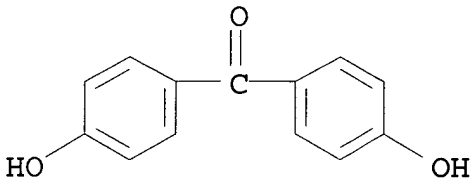
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



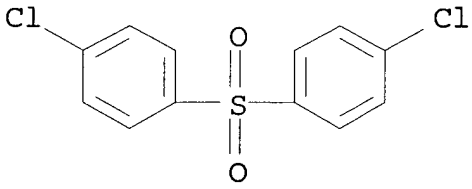
CM 2

CRN 611-99-4
CMF C13 H10 O3



CM 3

CRN 80-07-9
CMF C12 H8 Cl2 O2 S



IT **852156-73-1DP**, hydrolyzed **860020-60-6DP**, hydrolyzed
(membrane-electrode assemblies showing good low-temp. performance for solid polymer electrolyte fuel cells for vehicles and elec. app.)

L17 ANSWER 23 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:614403 Document No. 143:136280 Solid polyelectrolyte membranes showing high proton conductivity and solid polymer electrolyte fuel cells using them. Higami, Makoto; Goto, Kohei; Yamakawa, Yoshitaka; Rozhanskii, Igor (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005190675 A2 20050714, 39 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-426866 20031224.

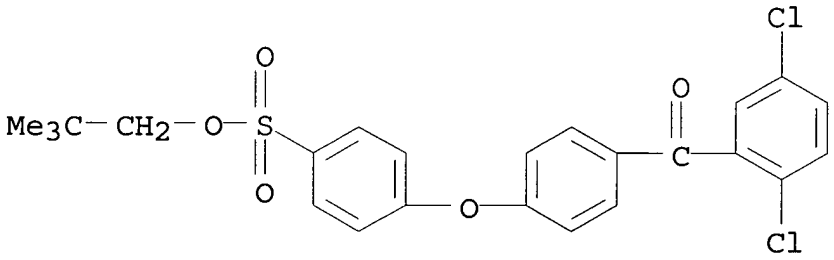
AB The membranes comprise (A) block or graft copolymers contg. polymer units comprising structural repeating units with SO3H and polymer units comprising structural repeating units without SO3H, and (B) polymers comprising structural repeating units with SO3H. The membranes show good hot water resistance.

IT **857860-52-7P**
(polyelectrolyte membranes showing good water and methanol resistance for proton-conductive membranes for fuel cell electrolyte membranes)

RN 857860-52-7 ZCAPLUS
CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

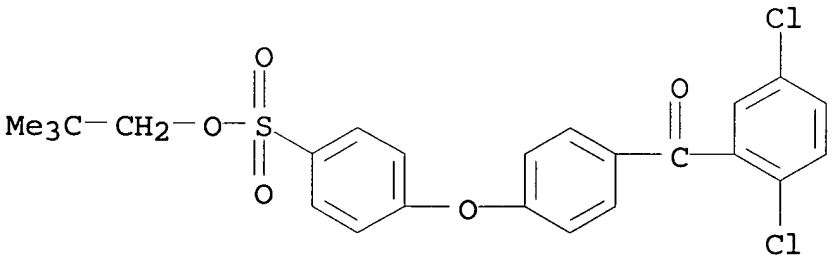
CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



IT **852156-73-1DP**, hydrolyzed
(solid polyelectrolyte membranes showing high proton cond. and hot water resistance for solid polymer electrolyte fuel cells)
RN 852156-73-1 ZCAPLUS
CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol], block (9CI) (CA INDEX NAME)

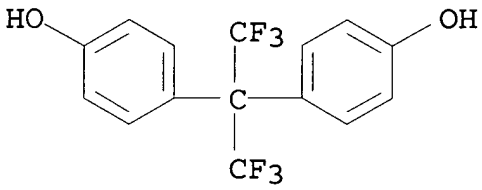
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



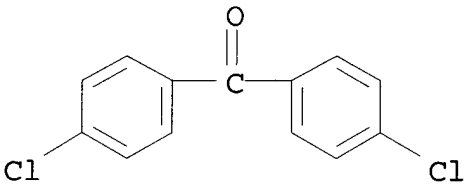
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **857860-52-7P**
(polyelectrolyte membranes showing good water and methanol resistance for proton-conductive membranes for fuel cell electrolyte membranes)
IT **852156-73-1DP**, hydrolyzed
(solid polyelectrolyte membranes showing high proton cond. and hot water resistance for solid polymer electrolyte fuel cells)

L17 ANSWER 24 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:608952 Document No. 143:116467 Polyelectrolyte membranes showing good water and methanol resistance, and their proton-conductive membranes. Yamakawa, Yoshitaka; Otsuki, Toshitaka (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005187495 A2 20050714, 32 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-426867 20031224.
AB The membranes, useful as fuel cell electrolyte membranes, comprise polyarylenes bearing SO3H ionically crosslinked with crosslinking agents. Thus, 2,2-bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane was polymd. with 4,4'-dichlorobenzophenone, and further polymd. with neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate, hydrolyzed, dissolved in NMP, and cast to give a film, which was soaked in an aq.

hexamethylenediamine soln., and dried, showing proton cond. 0.26 S/cm and MeOH permeability 265 g/h-m2.

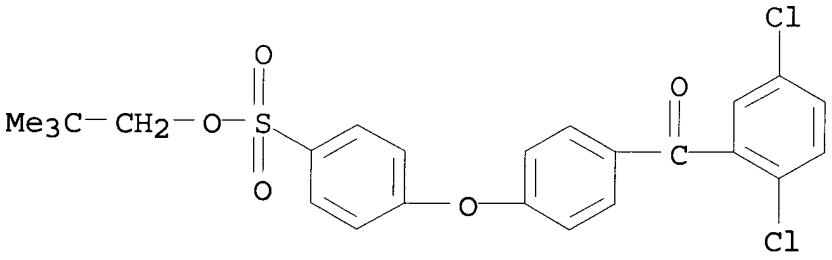
IT **852156-73-1DP**, 2,2-Bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate block copolymer, hydrolyzed, reaction product with hexamethylenediamine or tetramethylhexamethylenediamine
(polyelectrolyte membranes showing good water and methanol resistance for proton-conductive membranes for fuel cell electrolyte membranes)

RN 852156-73-1 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol], block (9CI) (CA INDEX NAME)

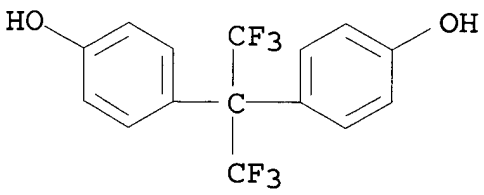
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



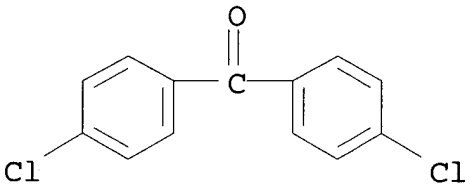
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O

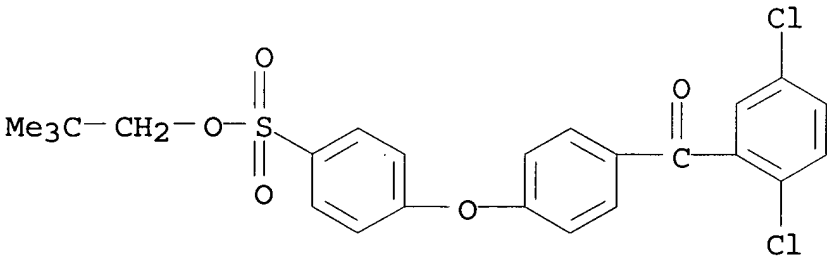


IT **852156-73-1DP**, 2,2-Bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate block copolymer, hydrolyzed, reaction product with hexamethylenediamine or tetramethylhexamethylenediamine
(polyelectrolyte membranes showing good water and methanol resistance for proton-conductive membranes for fuel cell electrolyte membranes)

L17 ANSWER 25 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:522752 Document No. 143:46048 Electrolyte membrane for directly dimethyl ether type fuel cell and the fuel cell which uses the membrane. Yoshii, Kimihiko; Otsuki, Toshitaka (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005158286 A2 20050616, 32 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-390892 20031120.
AB The electrolyte membrane contains a sulfonated polyarylene based polymer. The fuel cell uses the above electrolyte membrane.
IT **663920-28-3**
(electrolyte membrane contg. sulfonated polyarylene based polymer for directly di-Me ether type fuel cells)
RN 663920-28-3 ZCAPLUS
CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

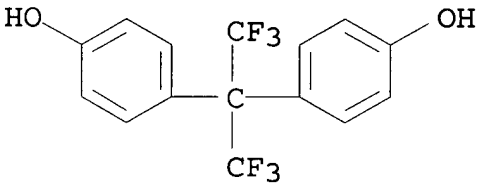
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



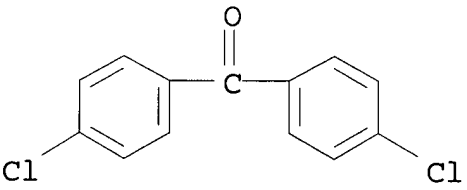
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **663920-28-3**
(electrolyte membrane contg. sulfonated polyarylene based polymer for directly di-Me ether type fuel cells)

L17 ANSWER 26 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:522227 Document No. 143:44762 Manufacture of crosslinked polymer electrolytes for proton-conductive films with good dimensional

stability. Monden, Toshiaki; Otsuki, Toshitaka (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005154578 A2 20050616, 45 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-395271 20031126.

AB The crosslinked polymer electrolytes, useful for fuel cell electrolytes, comprise polymers having polyphenylene, polyazole, polyimide, polyarylene sulfide, polysulfone, polyether-sulfone main chains, which are crosslinked via strong acid crosslinking groups. Thus, polymn. of bisphenol AF and 4,4'-dichlorobenzophenone, further polymn. with neopentyl-4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate, and hydrolysis gave a polymer electrolyte film, which was chlorosulfonated, crosslinked with trimethylsilylated 1,4-benzenesulfonamide Na salt, and hydrolyzed to give a crosslinked polymer electrolyte film showing sulfonic acid equiv. 2.4 meq/g, protonic cond. 0.284 S/cm, and good water resistance and mech. properties.

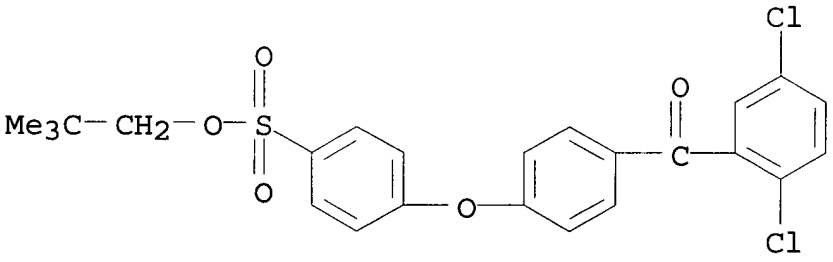
IT **663920-28-3P**, Bisphenol AF-4,4'-dichlorobenzophenone-neopentyl-4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate copolymer
(manuf. of crosslinked polymer electrolytes for proton-conductive films with good dimensional stability)

RN 663920-28-3 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

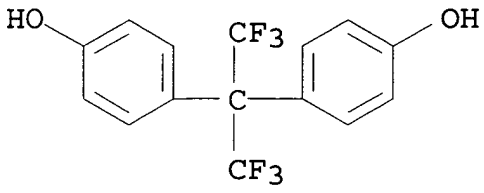
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



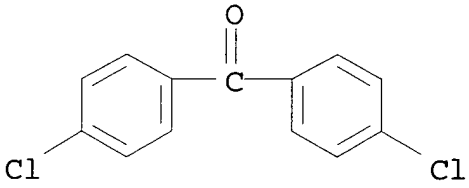
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



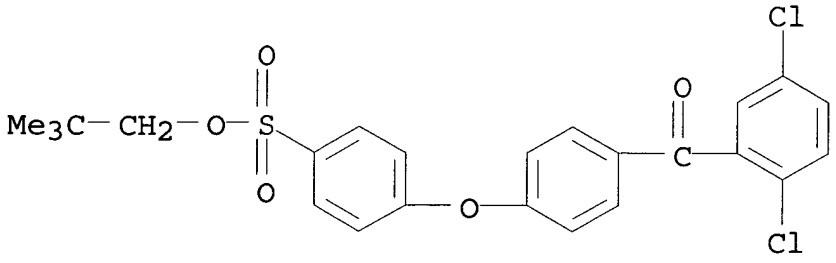
IT **663920-28-3DP**, Bisphenol AF-4,4'-dichlorobenzophenone-neopentyl-4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate copolymer, hydrolyzed, chlorosulfonated, reaction product with trimethylsilylated 1,4-benzenesulfonamide Na salt, hydrolyzed
(manuf. of crosslinked polymer electrolytes for proton-conductive films with good dimensional stability)

RN 663920-28-3 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

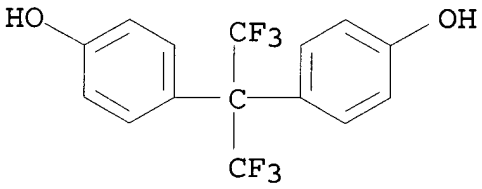
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



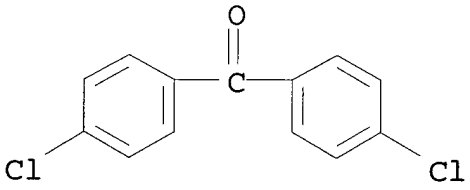
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **663920-28-3P**, Bisphenol AF-4,4'-dichlorobenzophenone-neopentyl-4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate copolymer
(manuf. of crosslinked polymer electrolytes for proton-conductive films with good dimensional stability)

IT **663920-28-3DP**, Bisphenol AF-4,4'-dichlorobenzophenone-neopentyl-4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate

copolymer, hydrolyzed, chlorosulfonated, reaction product with trimethylsilylated 1,4-benzenesulfonamide Na salt, hydrolyzed
(manuf. of crosslinked polymer electrolytes for proton-conductive films with good dimensional stability)

L17 ANSWER 27 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:493030 Document No. 143:29486 Proton-conductive membrane and directly methanol fuel cell which uses the membrane. Yoshii, Kimihiko; Otsuki, Toshitaka; Takasugi, Shingo (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005149989 A2 20050609, 34 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-388374 20031118.

AB The membrane comprises a composite of a sulfonate group -contg. polyarylene and a N-contg. compd. having mol. wt. <500. The fuel cell has an electrolyte membrane uses the above membrane.

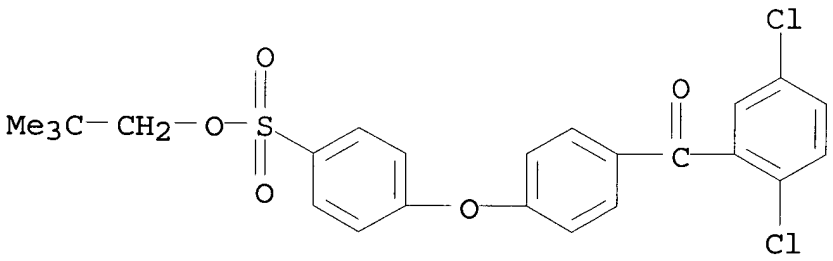
IT **663920-28-3**
(proton-conductive membranes having composites of sulfonated polyarylene and N-contg. compds. for fuel cell electrolytes)

RN 663920-28-3 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

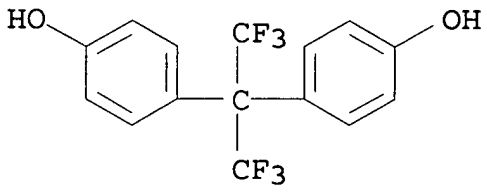
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



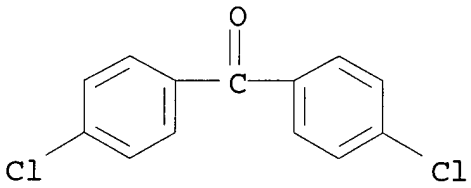
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **663920-28-3**
(proton-conductive membranes having composites of sulfonated polyarylene and N-contg. compds. for fuel cell electrolytes)

L17 ANSWER 28 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:493018 Document No. 143:17776 Acid-base composite-type polymer electrolyte membrane. Yamakawa, Yoshitaka; Otsuki, Toshitaka (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005149949 A2 20050609, 33 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-386859 20031117.

AB The membrane comprises sulfo-contg. polyarylenes and polymers having functional groups (e.g., N-contg. basic group) interactive to the sulfo groups. The membrane shows high proton cond. in wire temp. region, good mech. properties, and low MeOH permeability and is suitable for fuel cells.

IT **663920-28-3DP**, Bisphenol AF-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate copolymer, hydrolyzed
(acid-base composite-type polymer electrolyte membrane contg. sulfo-contg. polyarylenes and sulfo-interactive group-contg. polymers)

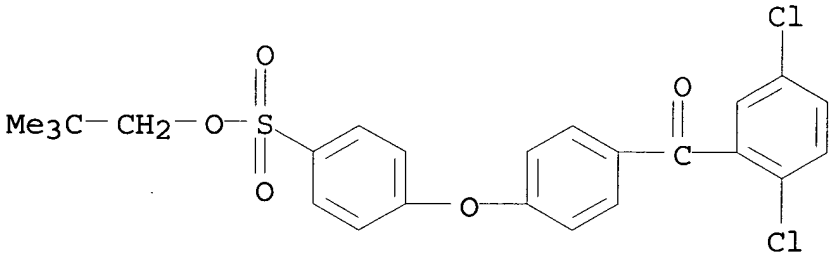
RN 663920-28-3 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone

and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

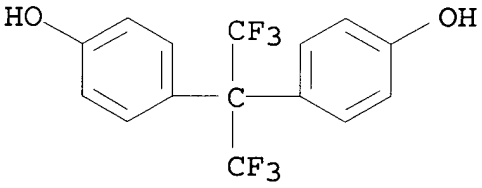
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



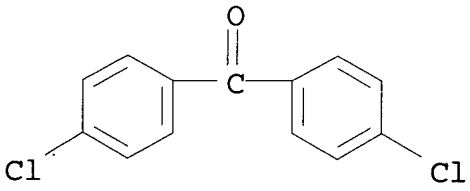
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **663920-28-3DP**, Bisphenol AF-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate copolymer, hydrolyzed
(acid-base composite-type polymer electrolyte membrane contg. sulfo-contg. polyarylenes and sulfo-interactive group-contg. polymers)

L17 ANSWER 29 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:492976 Document No. 143:8994 Polymer electrolyte membranes showing good dimensional stability and water resistance, and their manufacture and proton-conductive membranes. Kadota, Toshiaki; Otsuki, Toshitaka (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005149810 A2 20050609, 34 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-382981 20031112.

AB The polymer electrolyte membranes comprise polymers having polyphenylene structures on main chains and strongly acidic groups. The membranes are manufd. by halogenation of SO3H-contg. polymers and treatment of the resulting SO2X-contg. polymers (I) with RSO2NMH or RSO2NMSiMe3, or treatment of I with NH3 and treatment with RSO2X (X = halo; R = halo, OH, amino, alkyl, alkoxy, aryl; R may have hetero atom; M = metal ion, H ion, onium ion). Thus, bisphenol AF-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate copolymer was hydrolyzed, chlorinated with SO2Cl, and treated with NH2SO3H to give SO2NHSO3H-contg. polymer, which was cast on a glass sheet and dried to give a membrane showing proton cond. 0.320 S/cm.

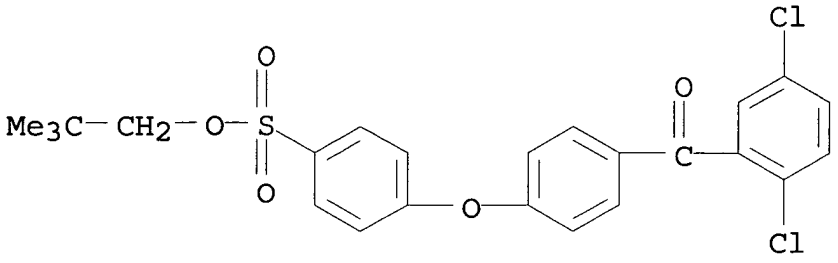
IT **663920-28-3DP**, Bisphenol AF-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate copolymer, hydrolyzed, chlorinated, and reaction product with sulfamic acid
(manuf. of polymer electrolyte membranes showing good dimensional stability, water resistance, and proton cond.)

RN 663920-28-3 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

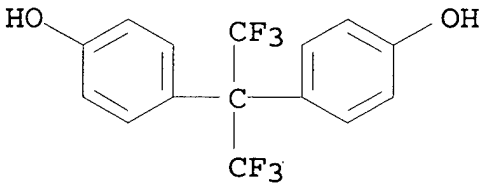
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



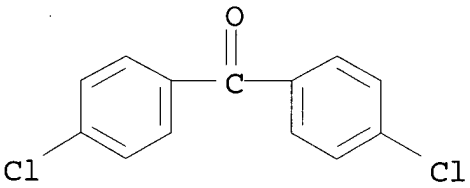
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

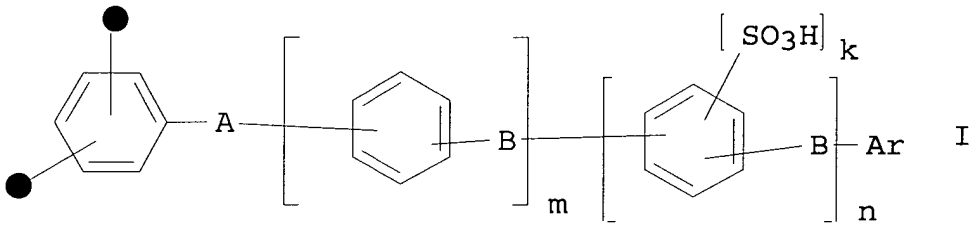
CRN 90-98-2
CMF C13 H8 Cl2 O

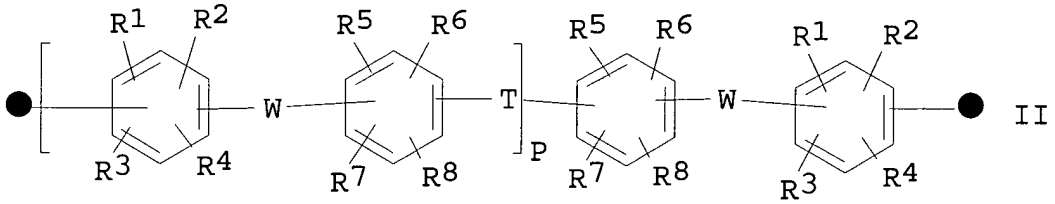


IT **663920-28-3DP**, Bisphenol AF-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate copolymer, hydrolyzed, chlorinated, and reaction product with sulfamic acid
(manuf. of polymer electrolyte membranes showing good dimensional stability, water resistance, and proton cond.)

L17 ANSWER 30 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:492579 Document No. 143:27753 Sulfonated polyarylene compositions and their proton-conductive composite films. Ogami, Koichi; Yamakawa, Yoshitaka; Otsuki, Toshitaka; Goto, Kohei (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005146145 A2 20050609, 32 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-386860 20031117.

GI





AB The compns. comprise sulfonated polyarylenes having repeating units of I (A = divalent electron-withdrawing group; B = divalent electron-donating group, single bond; Ar = SO3H-contg. arom. group; m = 0-10; n = 0-10; k = 1-4) and II [R1-R8 = H, F, (F-substituted) alkyl, allyl, aryl, cyano; W = divalent electron-withdrawing group, single bond; T = single bond, divalent org. group; p .gtoreq.2 when T = O and p .gtoreq.1 when T .noteq. O], and sulfonic acid group-contg. polymers having flexible structures. Thus, reaction of bisphenol AF and 4,4'-dichlorobenzophenone and then with neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate, and hydrolysis gave a sulfonated polyarylene, which was mixed with sulfonated polyether ether ketone and cast into a film showing improved bending crack resistance, mech. strength, hot water resistance, and adhesion to metals.

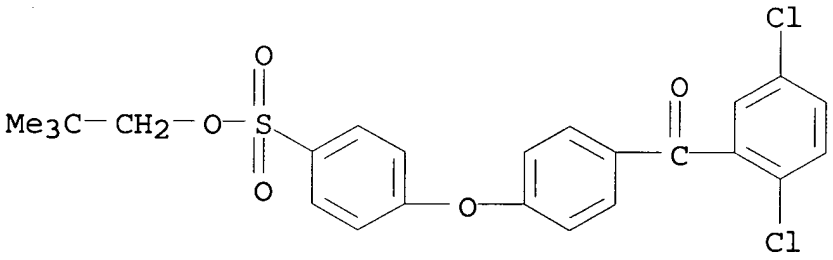
IT **663920-28-3P**, Bisphenol AF-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate copolymer
(sulfonated polyarylene compns. for proton-conductive composite films)

RN 663920-28-3 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

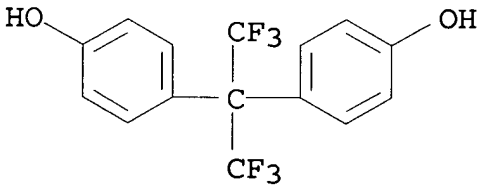
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



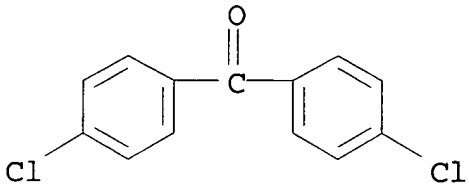
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



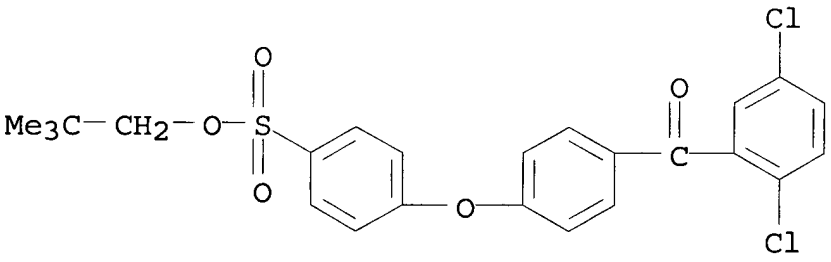
IT **663920-28-3DP**, Bisphenol AF-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate copolymer, hydrolyzed
(sulfonated polyarylene compns. for proton-conductive composite films)

RN 663920-28-3 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

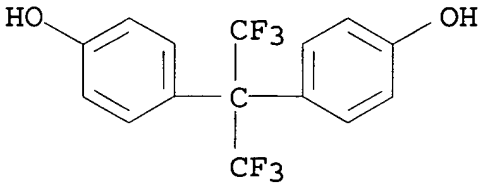
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



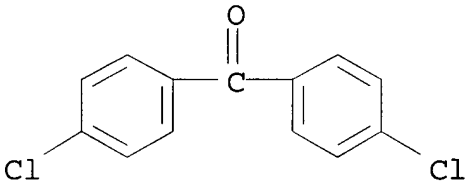
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **663920-28-3P**, Bisphenol AF-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate copolymer
(sulfonated polyarylene compns. for proton-conductive composite films)

IT **663920-28-3DP**, Bisphenol AF-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate copolymer, hydrolyzed
(sulfonated polyarylene compns. for proton-conductive composite films)

L17 ANSWER 31 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:492488 Document No. 143:8978 Manufacture of proton-conductive membrane with high mechanical strength and proton conductivity. Goto, Kohei; Kawai, Junji; Monden, Toshiaki (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005146019 A2 20050609, 35 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-381599 20031111.

AB The membranes for battery electrolytes, display devices, sensors, capacitors, ion exchange membranes, etc., are manufd. by applying solns. contg. (a) ion-conductive component-contg. polymers, (b) water-sol. org. compds. having mol. wt. .gtoreq.1000, and (c) org. solvents on substrates, removing the solvents to give dry films, and removing the water-sol. compds. from the films. Thus, a soln. contg. hydrolyzed bisphenol AF-4,4'-dichlorobenzophenone-neopentyl

4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate copolymer, N-methyl-2-pyrrolidone, and PEG 4000N (polyoxyethylene glycol) was cast on a support film and dried to give a film, which was immersed in water and dried to give a membrane showing proton cond. at 85.degree. and relative humidity 45% 2.9 .times. 10-2 .OMEGA.-cm and tensile strength 117 MPa.

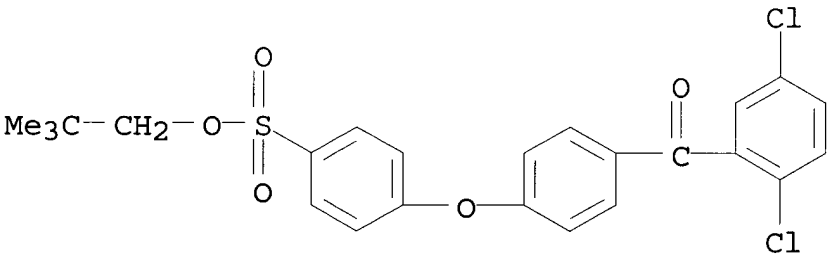
IT **663920-28-3DP**, Bisphenol AF-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate copolymer, hydrolyzed
(manuf. of proton-conductive membrane with high mech. strength and proton cond. by removing water-sol. org. compds. from formed films)

RN 663920-28-3 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

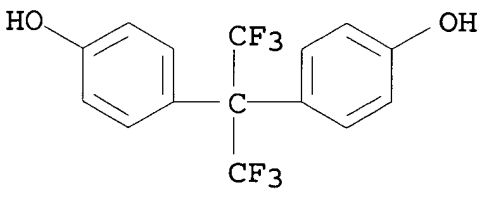
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



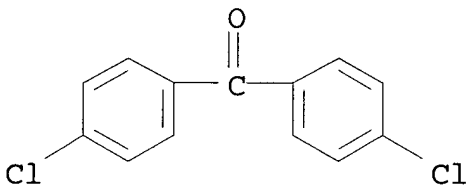
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **663920-28-3DP**, Bisphenol AF-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate copolymer, hydrolyzed
(manuf. of proton-conductive membrane with high mech. strength and proton cond. by removing water-sol. org. compds. from formed films)

L17 ANSWER 32 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:492487 Document No. 143:8977 Manufacture of proton-conductive membranes with high mechanical strength and proton conductivity. Goto, Kohei; Kawai, Atsushi; Sumida, Mayumi (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005146018 A2 20050609, 37 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-381598 20031111.

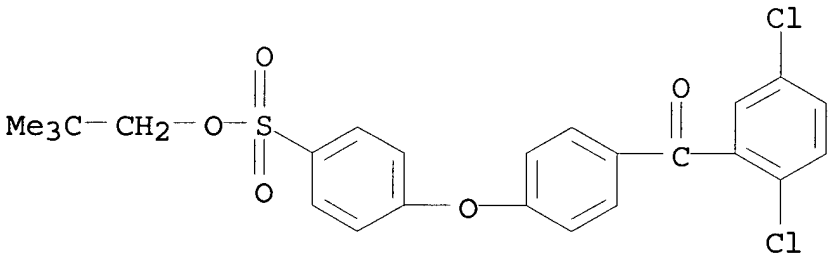
AB The membranes for battery electrolytes, display devices, sensors, capacitors, ion exchange membranes, etc., are manufd. by applying solns. contg. (a) ion-conductive component-contg. polymers, (b) water-sol. inorg. compds. or water-sol. org. compds. having mol. wt. <1000, and (c) org. solvents on substrates, removing the solvents to give dry films, and removing the water-sol. compds. from the films. Thus, a soln. contg. hydrolyzed bisphenol AF-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate copolymer, N-methyl-2-pyrrolidone, and 12-tungstophosphoric acid was cast on a support film and dried to give a film, which was immersed in water and dried to give a membrane showing proton cond. at 85.degree. and relative humidity 45% 2.5 .times. 10-2 .OMEGA.-cm and tensile strength 118 MPa.

IT **663920-28-3DP**, Bisphenol AF-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate copolymer, hydrolyzed
(manuf. of proton-conductive membrane with high mech. strength and proton cond. by removing water-sol. compds. from formed

films)
RN 663920-28-3 ZCAPLUS
CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

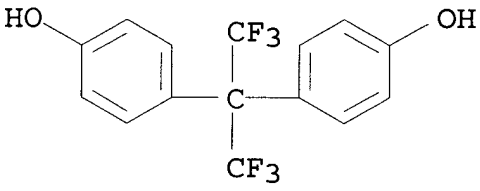
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



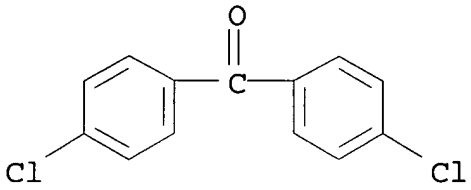
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **663920-28-3DP**, Bisphenol AF-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate copolymer, hydrolyzed
(manuf. of proton-conductive membrane with high mech. strength and proton cond. by removing water-sol. compds. from formed films)

L17 ANSWER 33 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:471707 Document No. 143:10576 Proton conductive membrane for solid polymer fuel cell. Kakuta, Mayumi; Otsuki, Toshihiro; Kanaoka, Nagayuki; Nanaumi, Masaaki; Asano, Yoichi; Takahashi, Ryoichiro (JSR Corporation, Japan; Honda Motor Co., Ltd.). U.S. Pat. Appl. Publ. US 2005116206 A1 20050602, 21 pp. (English). CODEN: USXXCO. APPLICATION: US 2004-995247 20041124. PRIORITY: JP 2003-399666 20031128.

AB The present invention provides a proton conductive membrane having capabilities of self-generating water and maintaining water, excellent ion cond. and excellent effect of inhibiting crossover and usable for solid polymer electrolyte type fuel cells and also provides a proton conductive compn. used for prepg. the proton conductive membrane. The proton conductive compn. comprises 100 parts by wt. of a polyarylene having a sulfonic group and 0.01 to 80 parts by wt. of at least one metal catalyst selected from the group consisting of platinum, gold, palladium, rhodium, iridium and ruthenium, or comprises 100 parts by wt. of a polyarylene having a sulfonic group, 0.01 to 80 parts by wt. of the metal catalyst, and 0.01 to 50 parts by wt. of metal oxide fine particles and/or fibers in total.

IT **663920-28-3P**
(proton conductive membrane for solid polymer fuel cell)

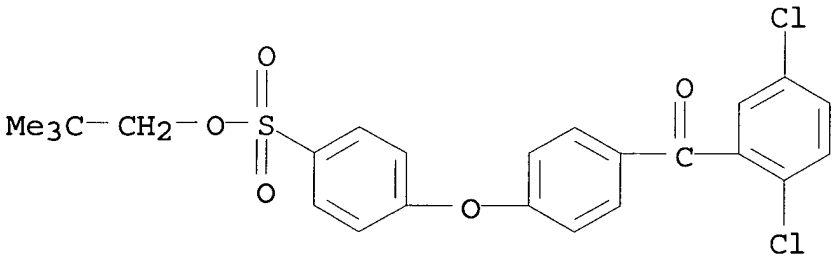
RN 663920-28-3 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

CM 1

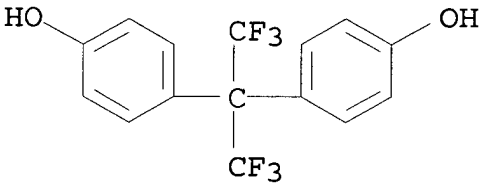
CRN 663920-26-1

CMF C24 H22 Cl2 O5 S



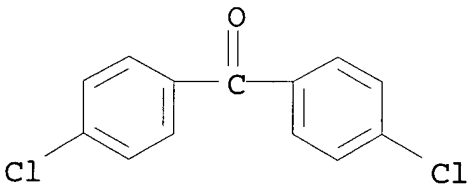
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **663920-28-3P**
(proton conductive membrane for solid polymer fuel cell)

L17 ANSWER 34 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:450114 Document No. 142:491868 Polymer electrolyte composition

and its proton-conductive membrane. Yamakawa, Yoshitaka; Otsuki, Toshitaka (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005135652 A2 20050526, 28 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-367953 20031028.

AB The compn. contains polymer electrolytes (e.g., sulfo-contg. polyarylene) and UV absorbents. The membrane is made of the compn. The membrane has high durability and weather resistance and is suitable for fuel cells.

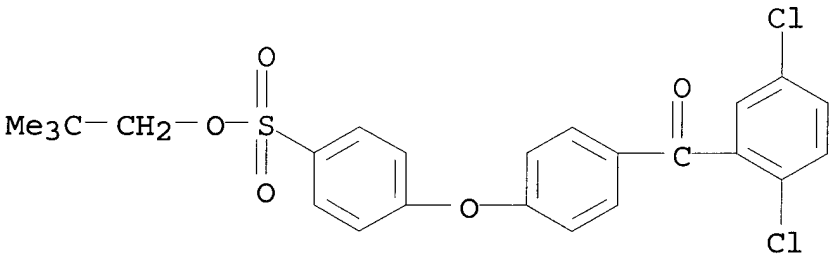
IT **663920-28-3DP**, hydrolyzed
(polymer electrolyte compn. contg. sulfo-contg. polyarylenes and UV absorbents for proton-conductive membrane)

RN 663920-28-3 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

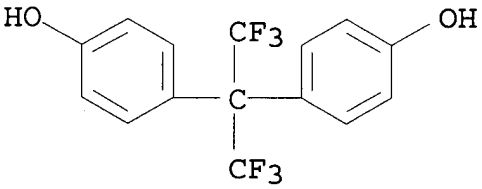
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



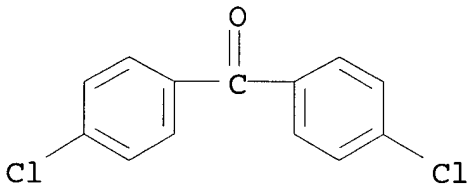
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **663920-28-3DP**, hydrolyzed
(polymer electrolyte compn. contg. sulfo-contg. polyarylenes and UV absorbents for proton-conductive membrane)

L17 ANSWER 35 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:449724 Document No. 142:483120 Polyarylene compositions, and their polyelectrolyte and proton-conducting membranes with high tenacity. Yamakawa, Yoshitaka; Otsuki, Toshitaka (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005132880 A2 20050526, 26 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-367954 20031028.

AB The compns., useful for fuel cells, contain sulfonated polyarylenes and plasticizers. The plasticizers may be phthalic acid esters, aliph. dibasic acid esters, phosphate esters, epoxides, acetylcitric acid esters, and polyesters. Thus, coupling 2,2-bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-4,4'-dichlorobenzophenone oligomer with 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonic acid neopentyl ester and hydrolyzing the ester groups gave a polyarylene with Mn 53,200, Mw 185,000, and SO3H content 1.9 mequiv./g, which was mixed with adipic acid-neopentyl glycol copolymer and cast to give films showing elastic modulus 3.6 and 3.7 GPa at 120.degree. and -20.degree., resp., and tensile strength 151 and 152 MPa at 120.degree. and -20.degree., resp.

IT **663920-28-3DP**, 2,2-Bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-4,4'-dichlorobenzophenone-4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonic acid neopentyl ester copolymer, hydrolyzed
(polyarylene compns. for polyelectrolyte membranes with high tenacity)

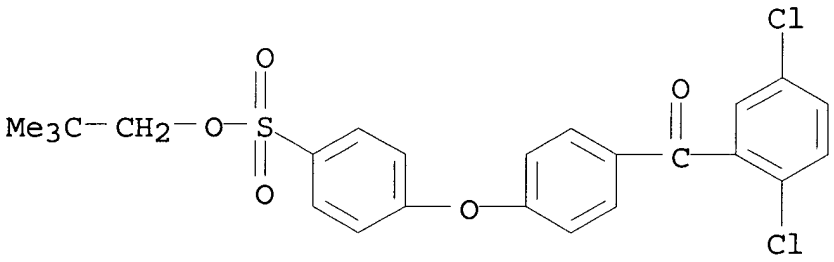
RN 663920-28-3 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol]

(9CI) (CA INDEX NAME)

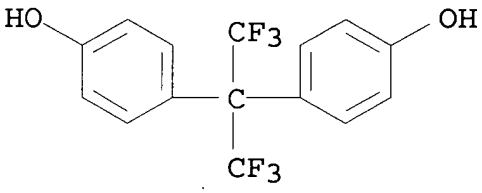
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



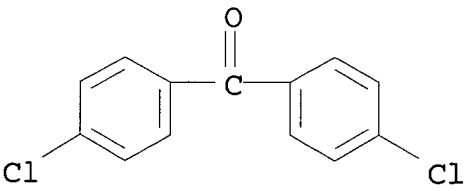
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **663920-28-3DP**, 2,2-Bis(4-hydroxyphenyl)-1,1,1,3,3,3-hexafluoropropane-4,4'-dichlorobenzophenone-4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonic acid neopentyl ester copolymer, hydrolyzed
(polyarylene compns. for polyelectrolyte membranes with high tenacity)

L17 ANSWER 36 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:445401 Document No. 142:484783 Sulfonated polyarylene solid electrolyte membranes showing good durability for fuel cells. Yamakawa, Yoshitaka; Sumida, Mayumi; Otsuki, Toshitaka (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005135651 A2 20050526, 26 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-367952 20031028.

AB The membranes contain polyarylenes having sulfonic acid groups, and catalysts chosen from oxides, macrocyclic metal complexes, and transition metal alloys for decompg. H2O2. The membranes suppress decompn. of the polyarylenes caused by H2O2 generated as an intermediate in cathodes.

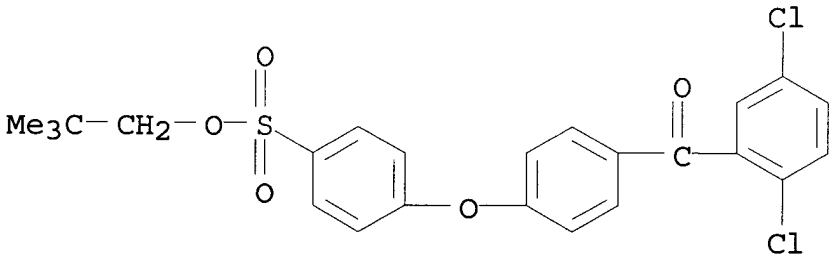
IT **852156-73-1P**
(sulfonated polyarylene solid electrolyte membranes contg. catalysts for decompn. of H2O2 for fuel cells)

RN 852156-73-1 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol], block (9CI) (CA INDEX NAME)

CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



CM 2

CRN 1478-61-1
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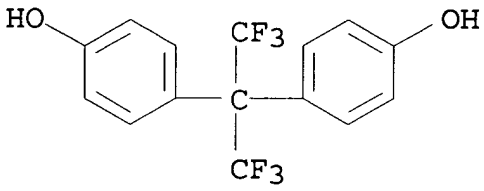
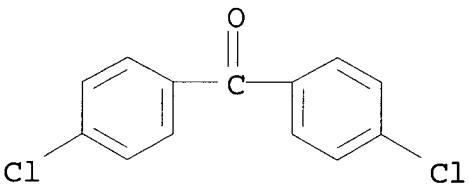


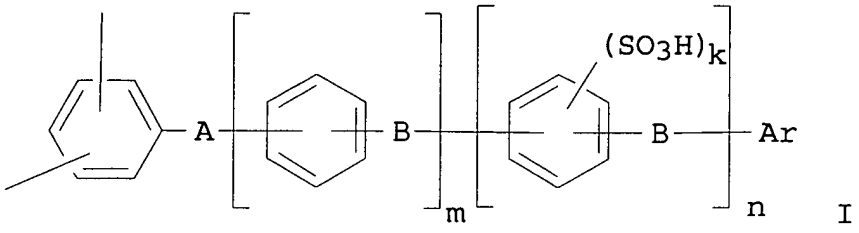
CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **852156-73-1P**
(sulfonated polyarylene solid electrolyte membranes contg. catalysts for decompn. of H2O2 for fuel cells)

L17 ANSWER 37 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:428365 Document No. 142:464789 Sulfonated polyarylene compositions, their organic solvent solutions, and their gas-barrier proton-conductive composite films. Onoe, Koichi; Otsuki, Toshitaka; Goto, Kohei (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005126638 A2 20050519, 35 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-366057 20031027.
GI



I

AB The compns. comprise (a) proton-conductive tetrafluoroethylene copolymers and (b) sulfonic acid-contg. polyarylenes having repeating units I (A = divalent electron-withdrawing group; B = divalent electron-donating group, single bond; Ar = SO3H-contg. arom. group; m = 0-10; n = 0-10; k = 1-4). Thus, a solvent soln. contg (a) Nafion (tetrafluoroethylene-perfluoroalkylsulfonic acid copolymer) and (b) sulfonic acid-contg. polyarylene prepd. from bisphenol AF-4,4'-dichlorobenzophenone oligomer and neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate was cast on a glass substrate and dried to give a film showing tensile strength 99 MPa, flexural modulus 3.0 GPa, protonic cond. 0.06 S/cm, and good bending crack resistance.

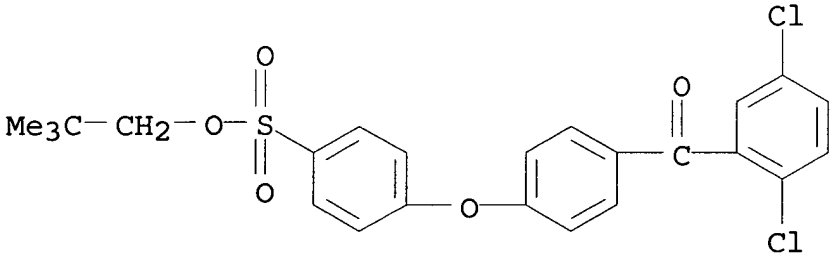
IT **663920-28-3P**, Bisphenol AF-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate copolymer
(sulfonated polyarylene compns. for gas-barrier proton-conductive composite films)

RN 663920-28-3 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

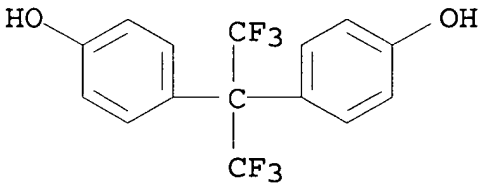
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



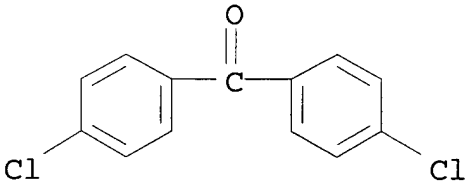
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O

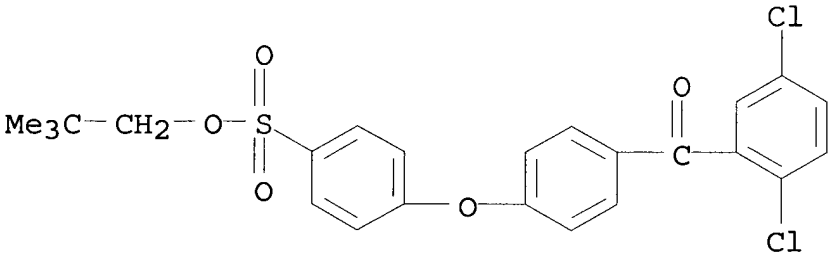


IT **663920-28-3DP**, Bisphenol AF-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate copolymer, hydrolyzed
(sulfonated polyarylene compns. for gas-barrier proton-conductive composite films)
RN 663920-28-3 ZCAPLUS
CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-,

2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

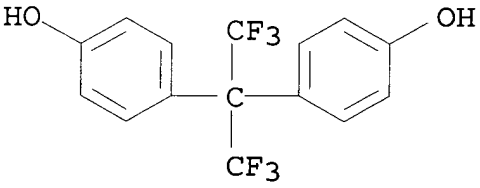
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



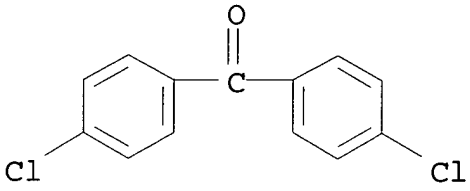
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **663920-28-3P**, Bisphenol AF-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate copolymer
(sulfonated polyarylene compns. for gas-barrier proton-conductive composite films)

IT **663920-28-3DP**, Bisphenol AF-4,4'-dichlorobenzophenone-neopentyl 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzenesulfonate copolymer, hydrolyzed
(sulfonated polyarylene compns. for gas-barrier proton-conductive composite films)

L17 ANSWER 38 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2005:253340 Document No. 142:319817 Membrane-electrode structure for solid polymer fuel cell. Otsuki, Toshihiro; Goto, Kohei; Takahashi, Ryoichiro; Asano, Yoichi (Honda Motor Co., Ltd., Japan; JSR Corporation). Eur. Pat. Appl. EP 1517390 A2 20050323, 25 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR. (English). CODEN: EPXXDW. APPLICATION: EP 2004-22083 20040916. PRIORITY: JP 2003-328310 20030919.

AB Disclosed is a membrane-electrode structure for a solid polymer fuel cell comprising a pair of electrode catalyst layers and a polyelectrolyte membrane sandwiched between the electrode catalyst layers, wherein the electrode catalyst layers contain polyarylene having a sulfonic acid group.

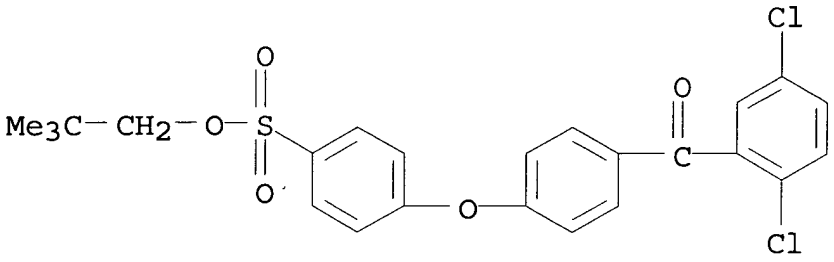
IT **663920-28-3P**
(membrane-electrode structure for solid polymer fuel cell)

RN 663920-28-3 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

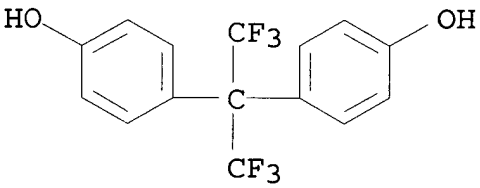
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



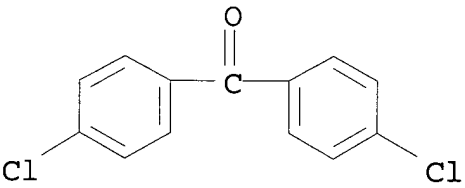
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **663920-28-3P**
(membrane-electrode structure for solid polymer fuel cell)

L17 ANSWER 39 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2004:1058429 Document No. 142:41476 Aromatic sulfonate ester derivatives, polyarylenes, sulfo-containing polyarylenes and their manufacture, and polymer solid electrolytes and proton-conducting membranes for fuel cells. Yamakawa, Yoshitaka; Kadota, Toshiaki;

Rojanski, Igor; Goto, Kohei (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2004346163 A2 20041209, 29 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-143904 20030521.

AB The ester derivs. are represented by C6X2H3A(C6H4B)m[C6(SO3Ra)kH4-k]nAr [X = halo excluding F, OSO3Me, OSO3CF3; A = divalent org.; B = A, direct bond; Ra = C4-20 hydrocarbyl; Ar = SO3Rb (Rb = Ra)-substituted arom.; when n = 0, Ar = Ph; m, n = 0-10; m + n .gtoreq. 1; k = 1-4]. The polyarylenes have arom. repeating units including X-free residues of the above derivs. The sulfo-contg. polyarylenes are manufd. by coupling-polymn. of arom. compds. contg. the ester derivs. and hydrolysis of the resulting polyarylenes. The electrolytes are made of the sulfo-contg. polyarylenes and contained in the title membranes. Sulfonating agents are not used in manuf. of the sulfo-contg. polyarylenes to reduce load in recovering the polymers, and introduction amt. and position of sulfo group in the polymers are easily controlled.

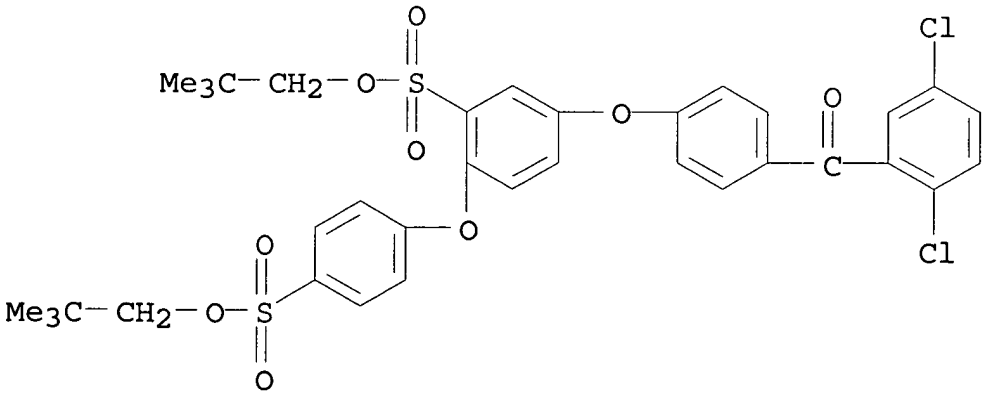
IT **663920-37-4P**
(arom. sulfonate ester derivs. forming polyarylenes used in manuf. of sulfo-contg. polyarylenes for polymer solid electrolytes and proton-conducting membranes for fuel cells)

RN 663920-37-4 ZCAPLUS

CN Benzenesulfonic acid, 5-[4-(2,5-dichlorobenzoyl)phenoxy]-2-[4-[(2,2-dimethylpropoxy)sulfonyl]phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

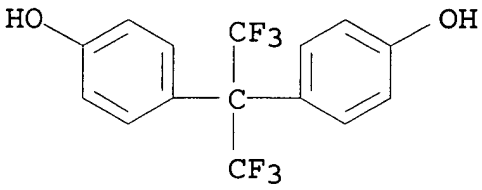
CM 1

CRN 663920-36-3
CMF C35 H36 Cl2 O9 S2



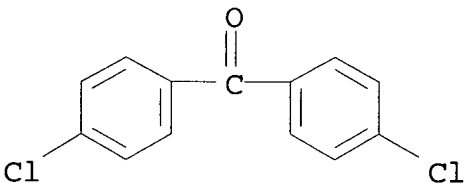
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

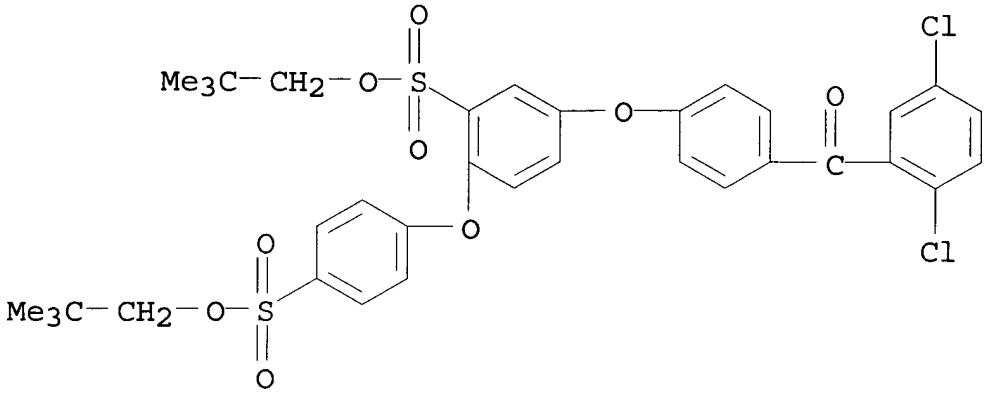
CRN 90-98-2
CMF C13 H8 Cl2 O



IT **663920-37-4DP**, hydrolyzed
(arom. sulfonate ester derivs. forming polyarylenes used in manuf. of sulfo-contg. polyarylenes for polymer solid electrolytes and proton-conducting membranes for fuel cells)
RN 663920-37-4 ZCAPLUS
CN Benzenesulfonic acid, 5-[4-(2,5-dichlorobenzoyl)phenoxy]-2-[4-[(2,2-dimethylpropoxy)sulfonyl]phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

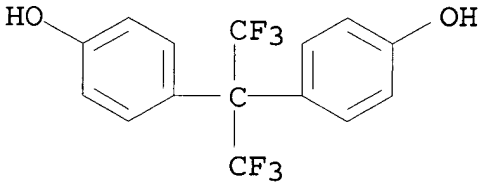
CM 1

CRN 663920-36-3
CMF C35 H36 Cl2 O9 S2



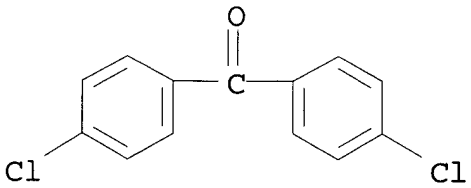
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O

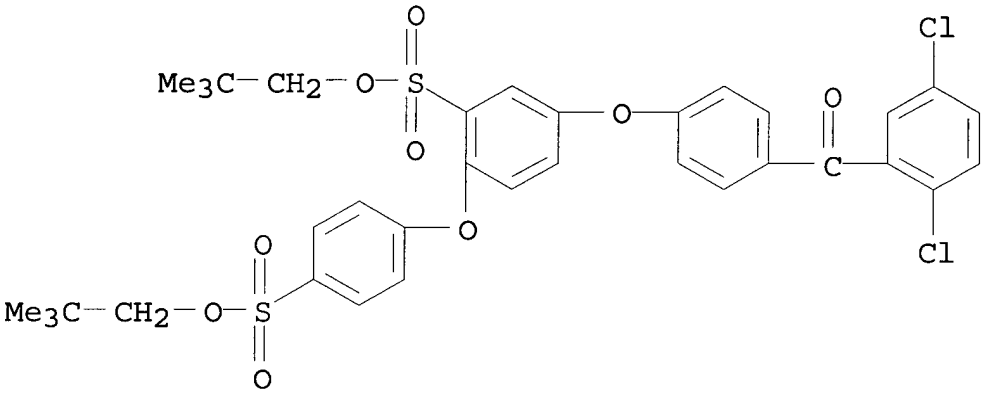


IT **663920-36-3P**
(monomer; arom. sulfonate ester derivs. forming polyarylenes used in manuf. of sulfo-contg. polyarylenes for polymer solid

electrolytes and proton-conducting membranes for fuel cells)

RN 663920-36-3 ZCAPLUS

CN Benzenesulfonic acid, 5-[4-(2,5-dichlorobenzoyl)phenoxy]-2-[4-[(2,2-dimethylpropoxy)sulfonyl]phenoxy]-, 2,2-dimethylpropyl ester (9CI) (CA INDEX NAME)



IT **663920-37-4P**
(arom. sulfonate ester derivs. forming polyarylenes used in manuf. of sulfo-contg. polyarylenes for polymer solid electrolytes and proton-conducting membranes for fuel cells)

IT **663920-37-4DP**, hydrolyzed
(arom. sulfonate ester derivs. forming polyarylenes used in manuf. of sulfo-contg. polyarylenes for polymer solid electrolytes and proton-conducting membranes for fuel cells)

IT **663920-36-3P**
(monomer; arom. sulfonate ester derivs. forming polyarylenes used in manuf. of sulfo-contg. polyarylenes for polymer solid electrolytes and proton-conducting membranes for fuel cells)

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2004:1058352 Document No. 142:41475 Aromatic sulfonic acid esters, their polyarylenes, and manufacture of sulfonated polyarylenes as electrolytes for proton conducting membranes for fuel cells. Konno, Yosuke; Otsuki, Toshitaka (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2004345997 A2 20041209, 24 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-143903 20030521.

AB The esters are X2C6H3A(C6H4Y)mAr (I; X = halo other than F, OSO3Me, OSO3CF3; A, Y = bivalent org. group; Ar = polynuclear arom. group having CO3R; R = C3-20 hydrocarbyl; m = 0-10). The sulfonated polyarylenes having desirable sulfonation degree are manufd. by coupling polymn. of arom. compds. contg. I, followed by hydrolysis. The proton conducting membranes show good hot-water resistance and durability.

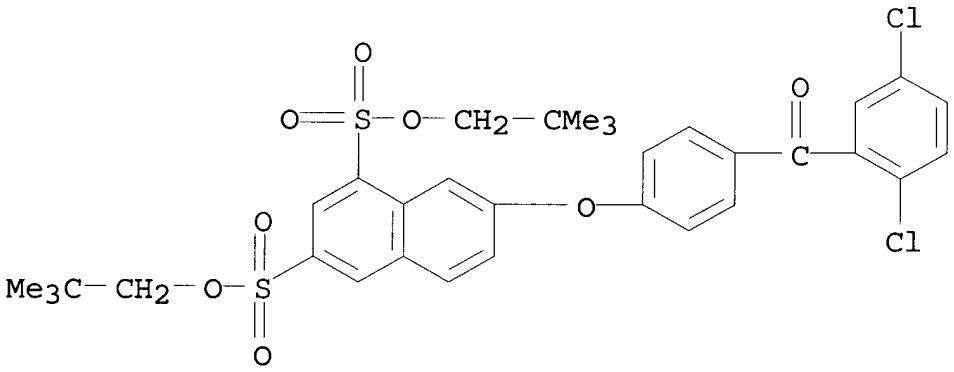
IT **803745-52-0DP**, hydrolyzed
(manuf. of sulfonated polyarylenes as electrolytes for proton conducting membranes for fuel cells by coupling polymn. of arom. sulfonic acid esters and hydrolysis)

RN 803745-52-0 ZCAPLUS

CN 1,3-Naphthalenedisulfonic acid, 7-[4-(2,5-dichlorobenzoyl)phenoxy]-, bis(2,2-dimethylpropyl) ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol], graft (9CI) (CA INDEX NAME)

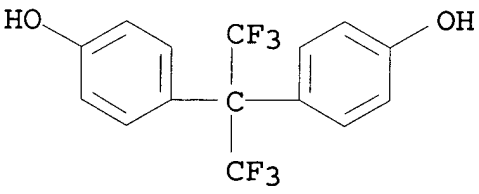
CM 1

CRN 663920-31-8
CMF C33 H34 Cl2 O8 S2



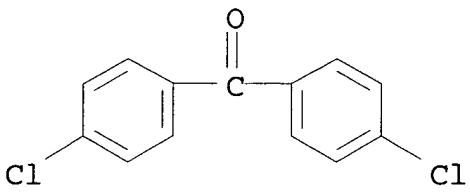
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

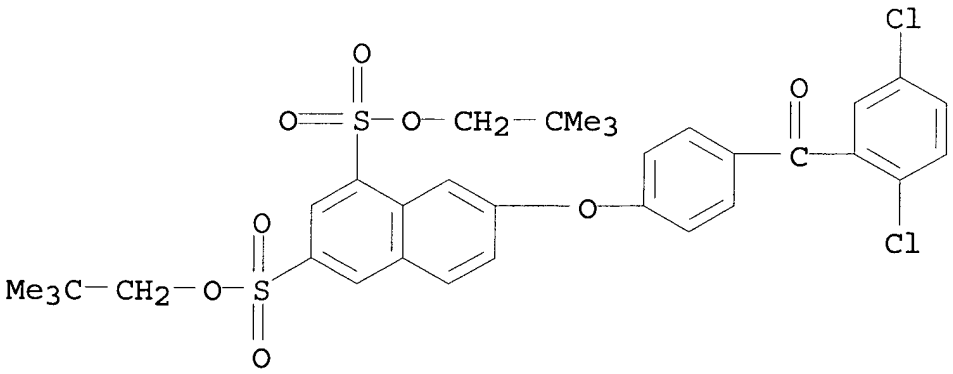
CRN 90-98-2
CMF C13 H8 Cl2 O



IT **803745-52-0P**
(manuf. of sulfonated polyarylenes as electrolytes for proton conducting membranes for fuel cells by coupling polymn. of arom. sulfonic acid esters and hydrolysis)
RN 803745-52-0 ZCAPLUS
CN 1,3-Naphthalenedisulfonic acid, 7-[4-(2,5-dichlorobenzoyl)phenoxy]-, bis(2,2-dimethylpropyl) ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol], graft (9CI) (CA INDEX NAME)

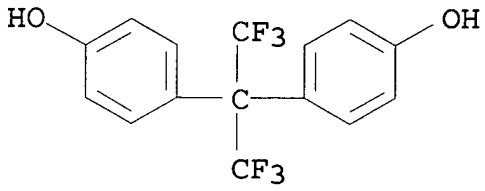
CM 1

CRN 663920-31-8
CMF C33 H34 Cl2 O8 S2



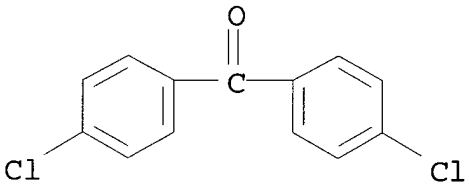
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **803745-52-0DP**, hydrolyzed
(manuf. of sulfonated polyarylenes as electrolytes for proton conducting membranes for fuel cells by coupling polymn. of arom. sulfonic acid esters and hydrolysis)

IT **803745-52-0P**
(manuf. of sulfonated polyarylenes as electrolytes for proton conducting membranes for fuel cells by coupling polymn. of arom. sulfonic acid esters and hydrolysis)

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2004:1011984 Document No. 142:9166 Membrane-electrode assembly for direct methanol type fuel cell and proton conductive membrane. Okada, Takashi; Goto, Kohei (JSR Corporation, Japan). Eur. Pat. Appl. EP 1479714 A1 20041124, 47 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR. (English). CODEN: EPXXDW. APPLICATION: EP 2004-11986 20040519. PRIORITY: JP 2003-143914 20030521.

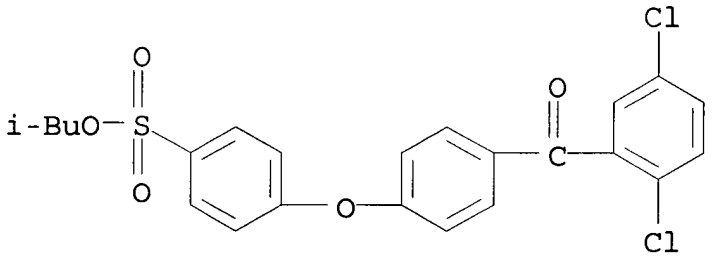
AB A membrane-electrode assembly for direct methanol type fuel cell and a proton conductive membrane for direct methanol type fuel cell are disclosed. The membrane-electrode assembly comprises a neg. electrode and a pos. electrode assembled via a proton conductive membrane, the neg. electrode being provided with a neg. electrode-side separator having a mechanism for feeding a methanol

aq. soln. as a fuel, the pos. electrode being provided with a pos. electrode-side separator having a mechanism for feeding an oxidizing agent gas, and the proton conductive membrane comprising a polymer contg. 0.05-99.95 mol% of polyarylene unit bearing sulfonic acid groups and 0.05-99.95 mol% of other substituted polyarylene unit.

IT **663920-25-0P 663920-26-1P 796973-89-2P 796973-92-7P**
(manuf. of membrane-electrode assembly for direct methanol type fuel cell and proton conductive membrane)

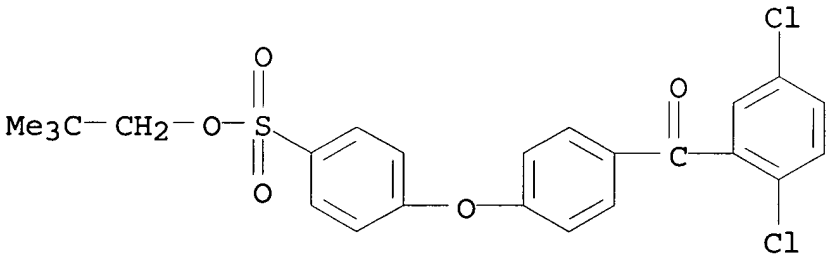
RN 663920-25-0 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2-methylpropyl ester (9CI) (CA INDEX NAME)



RN 663920-26-1 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester (9CI) (CA INDEX NAME)

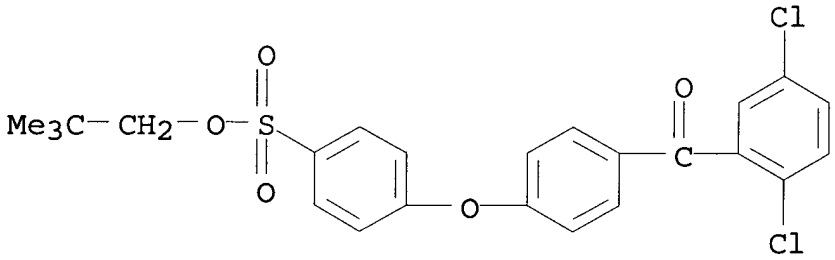


RN 796973-89-2 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with [1,1'-biphenyl]-2,5-diol and bis(4-fluorophenyl)methanone (9CI) (CA INDEX NAME)

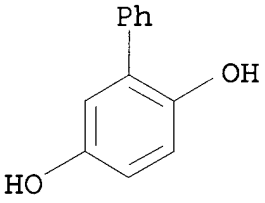
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



CM 2

CRN 1079-21-6
CMF C12 H10 O2



CM 3

CRN 345-92-6
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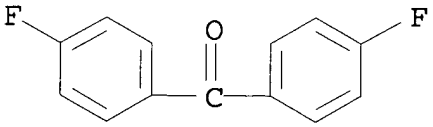
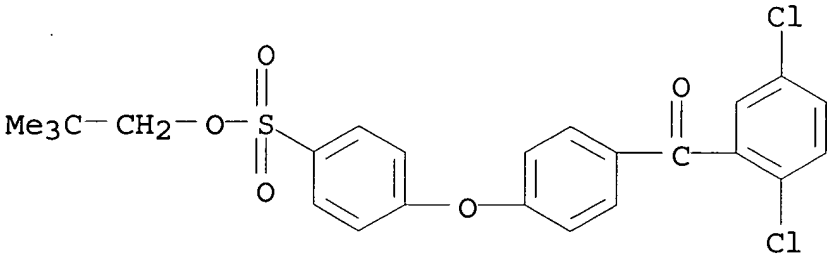


RN 796973-92-7 ZCAPLUS
CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-fluorophenyl)methanone and 5,5''-(9H-fluoren-9-ylidene)bis[[1,1'-biphenyl]-2-ol] (9CI) (CA INDEX NAME)

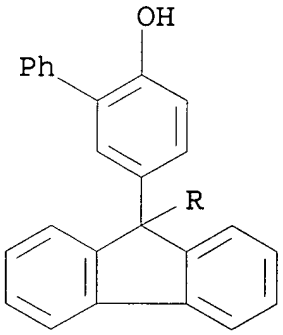
CM 1

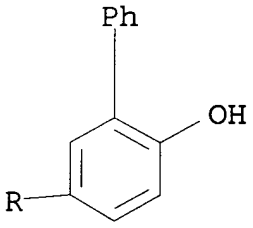
CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



CM 2

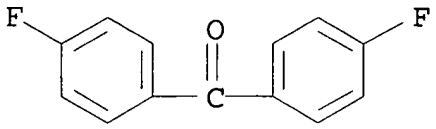
CRN 161256-84-4
CMF C37 H26 O2





CM 3

CRN 345-92-6
CMF C13 H8 F2 O



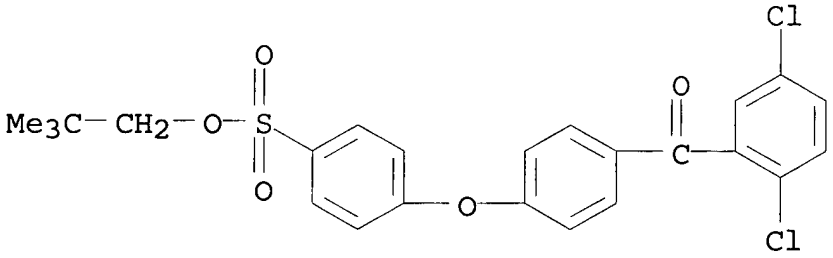
IT **796973-89-2DP**, deprotected products **796973-92-7DP**, deprotected products
(membranes; manuf. of membrane-electrode assembly for direct methanol type fuel cell and proton conductive membrane)

RN 796973-89-2 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with [1,1'-biphenyl]-2,5-diol and bis(4-fluorophenyl)methanone (9CI) (CA INDEX NAME)

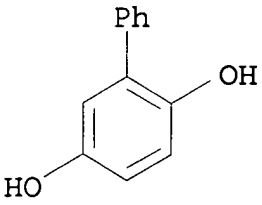
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



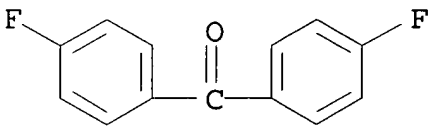
CM 2

CRN 1079-21-6
CMF C12 H10 O2



CM 3

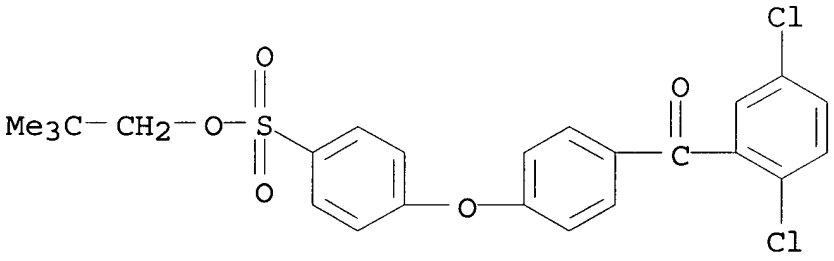
CRN 345-92-6
CMF C13 H8 F2 O



RN 796973-92-7 ZCAPLUS
CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-fluorophenyl)methanone and 5,5''-(9H-fluoren-9-ylidene)bis[[1,1'-biphenyl]-2-ol] (9CI) (CA INDEX NAME)

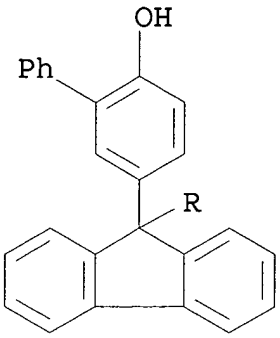
CM 1

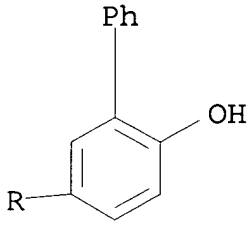
CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



CM 2

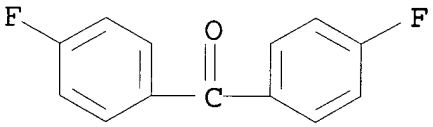
CRN 161256-84-4
CMF C37 H26 O2





CM 3

CRN 345-92-6
CMF C13 H8 F2 O



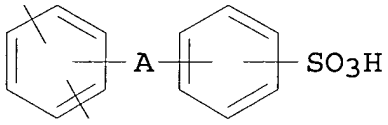
IT **663920-25-0P 663920-26-1P 796973-89-2P**
796973-92-7P
(manuf. of membrane-electrode assembly for direct methanol type fuel cell and proton conductive membrane)

IT **796973-89-2DP**, deprotected products **796973-92-7DP**, deprotected products
(membranes; manuf. of membrane-electrode assembly for direct methanol type fuel cell and proton conductive membrane)

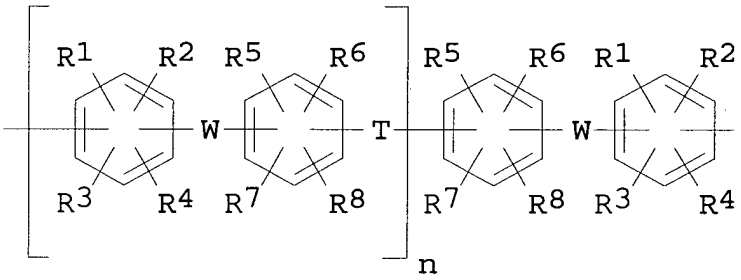
L17 ANSWER 42 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2004:402980 Document No. 140:409627 Electrode structure for polymer electrolyte fuel cells. Sohma, Hiroshi; Iguchi, Masaru; Kanaoka, Nagayuyki; Kaji, Hayato; Morikawa, Hiroshi; Mitsuta, Naoki (Honda

Motor Co., Ltd., Japan). Eur. Pat. Appl. EP 1420473 A1 20040519, 26 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK. (English). CODEN: EPXXDW. APPLICATION: EP 2003-26194 20031117. PRIORITY: JP 2002-333143 20021118; JP 2003-371047 20031030.

GI



I



II

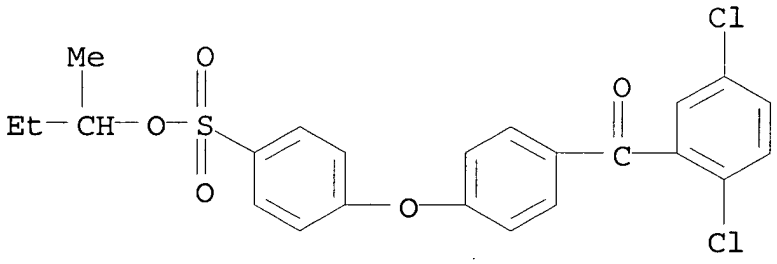
AB The present invention provides an electrode structure for polymer electrolyte fuel cells, inexpensive, and exhibiting excellent power prodn. capacity and durability even under high temp./low humidity conditions, and also provides a polymer electrolyte fuel cell which incorporates the same electrode structure. The present invention also provides an elec. device and transportation device, each incorporating the same polymer electrolyte fuel cell. The electrode structure comprises a pair of electrode catalyst layers, each contg. a catalyst supported by carbon particles, and polymer electrolyte membrane placed between these electrode catalyst layers. The polymer electrolyte membrane is of a sulfonated polyarylene composed of 0.5 to 100% by mol of the first repeating unit represented by (I) and 0 to 99.5% by mol of the second repeating unit represented by (II): (wherein, A is a divalent org. group; and a benzene ring includes its deriv.; -W- is a divalent electron attracting group; -T- is a divalent org. group; and R1 to R8 are a hydrogen atom or fluorine atom, an alkyl group, fluorine-substituted alkyl group, allyl group, aryl group or cyano group, and may be the same or different).

IT **690247-89-3D**, ester hydrolysis products
(electrode structure for polymer electrolyte fuel cells)

RN 690247-89-3 ZCAPLUS
CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 1-methylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol], block (9CI) (CA INDEX NAME)

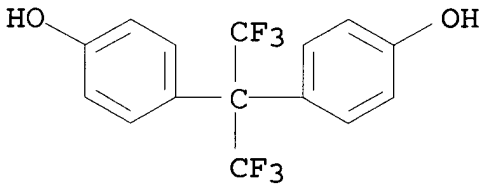
CM 1

CRN 690247-88-2
CMF C23 H20 Cl2 O5 S



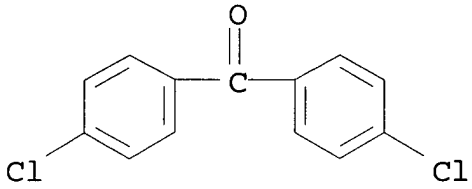
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2

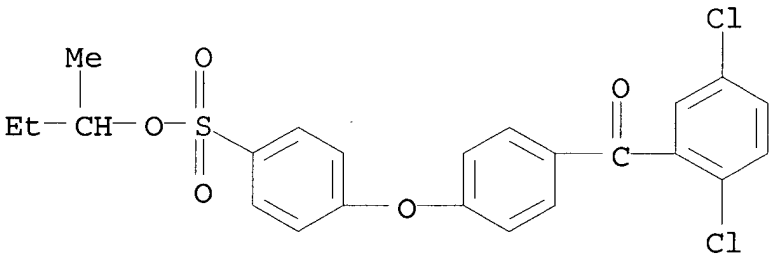


CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **690247-88-2P 690247-89-3P**
(electrode structure for polymer electrolyte fuel cells)
RN 690247-88-2 ZCAPLUS
CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 1-methylpropyl ester (9CI) (CA INDEX NAME)



RN 690247-89-3 ZCAPLUS
CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 1-methylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol], block (9CI) (CA INDEX NAME)

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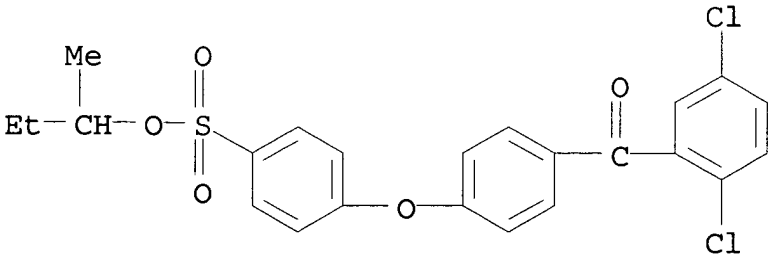

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CRN 1478-61-1
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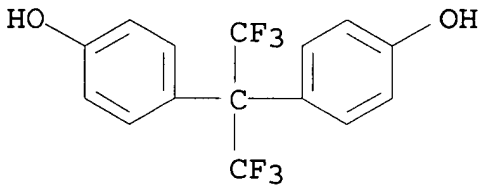
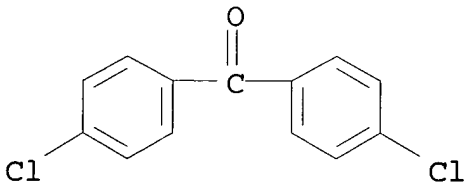


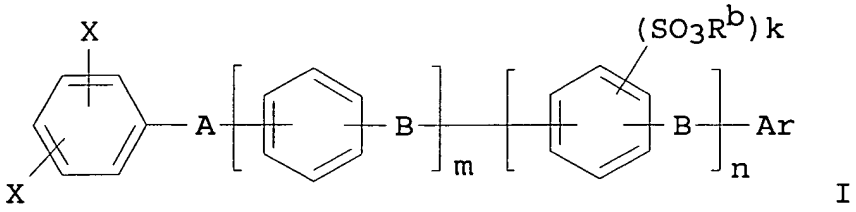
CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **690247-89-3D**, ester hydrolysis products
(electrode structure for polymer electrolyte fuel cells)
IT **690247-88-2P 690247-89-3P**
(electrode structure for polymer electrolyte fuel cells)

L17 ANSWER 43 OF 43 ZCAPLUS COPYRIGHT 2006 ACS on STN
2004:182578 Document No. 140:218271 Novel aromatic sulfonic acid ester derivative, polyarylene, polyarylene having sulfonic acid group and process for producing the same, and polymer solid electrolyte and proton-conductive membrane. Rozhanskii, Igor; Takahashi, Masayuki; Goto, Kohei; Konno, Yousuke; Ohtsuki, Toshihiro; Yamakawa, Yoshitaka; Kadota, Toshiaki (JSR Corporation, Japan). U.S. Pat. Appl. Publ. US 2004044166 A1 20040304, 61 pp. (English). CODEN: USXXCO. APPLICATION: US 2003-642694 20030819. PRIORITY: JP 2002-242508 20020822; JP 2002-364229 20021216.
GI



I

AB Disclosed is an arom. sulfonic acid ester deriv. represented by the formula (I); where X is an atom or a group selected from a halogen atom excluding fluorine, -OSO3CH3 and -OSO3CF3, A is a divalent electron attractive group, B is a divalent electron donating group or a direct bonding, Ra is a hydrocarbon group of 1 to 20 carbon atoms, Ar is an arom. group having a substituent of -SO3Rb (wherein Rb is a hydrocarbon group of 1 to 20 carbon atoms), m is an integer of 0 to 10, n is an integer of 0 to 10 and k is an integer of 1 to 4. Also disclosed is a process for producing a polyarylene having a sulfonic acid group, which process comprises the steps of coupling polymn. of an arom. compd. contg. the deriv. of the formula (I), to prep. a polyarylene and hydrolysis of the polyarylene, and which process has high safety and is easily capable of controlling the amt. of sulfonic acid group introduced into a polymer and the introducing position thereof. Thus, ionic conducting polymers were prepd. by hydrolyzed bisphenol AF-4,4'-dichlorobenzophenone-iso-Bu 4-[4-(2,5-dichlorobenzoyl)phenoxy]benzene sulfonate copolymer with concd. hydrochloric acid.

IT **663920-27-2P 663920-28-3P 663920-29-4P**
663920-32-9P 663920-37-4P
(ionic conducting polymer precursor; prepn. of polyarylene-contg. arom. sulfonic acid for polymer solid electrolyte and proton-conductive membrane)

RN 663920-27-2 ZCAPLUS

CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2-methylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

CM 1

CRN 663920-25-0
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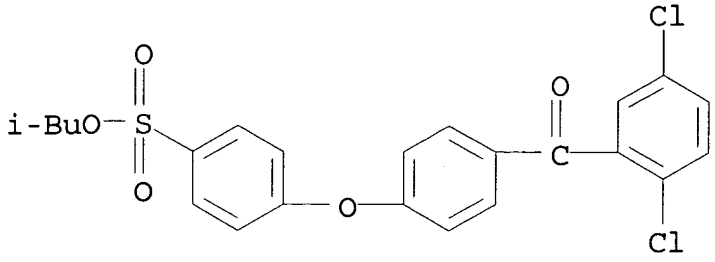
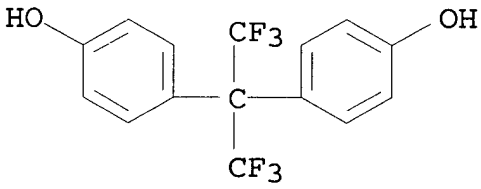


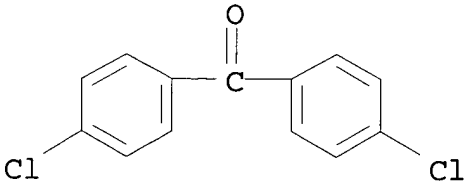
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

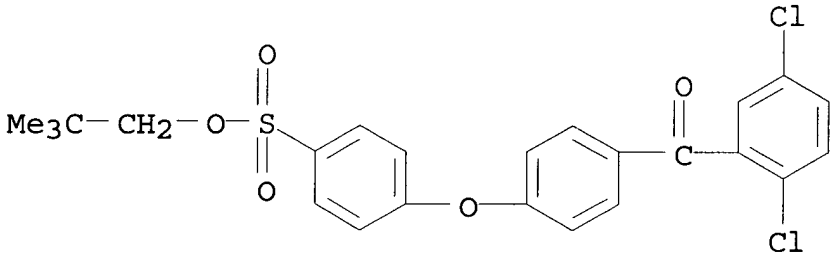
CRN 90-98-2
CMF C13 H8 Cl2 O



RN 663920-28-3 ZCAPLUS
CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

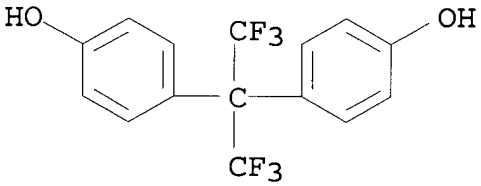
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



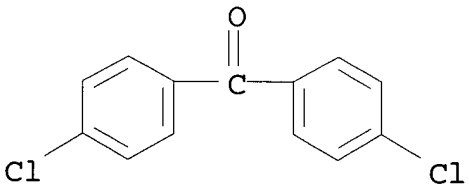
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O

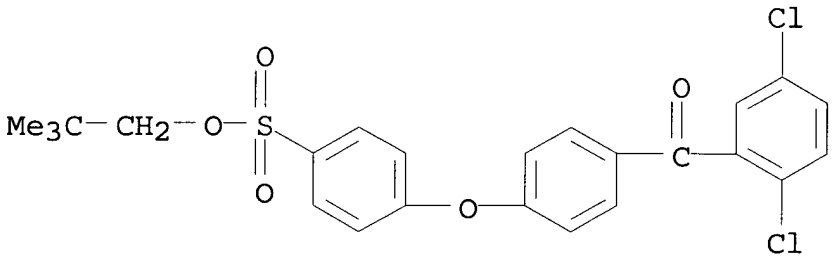


RN 663920-29-4 ZCAPLUS
CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone

and 4,4'-(9H-fluoren-9-ylidene)bis[phenol] (9CI) (CA INDEX NAME)

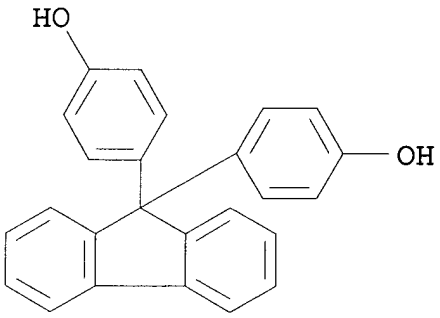
CM 1

CRN 663920-26-1
CMF C24 H22 Cl2 O5 S



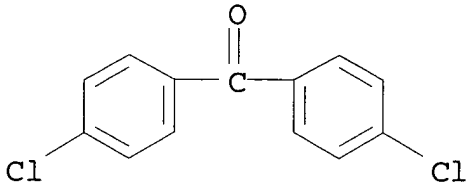
CM 2

CRN 3236-71-3
CMF C25 H18 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



RN 663920-32-9 ZCAPLUS
CN 1,3-Naphthalenedisulfonic acid, 7-[4-(2,5-dichlorobenzoyl)phenoxy]-, bis(2,2-dimethylpropyl) ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

CM 1

CRN 663920-31-8
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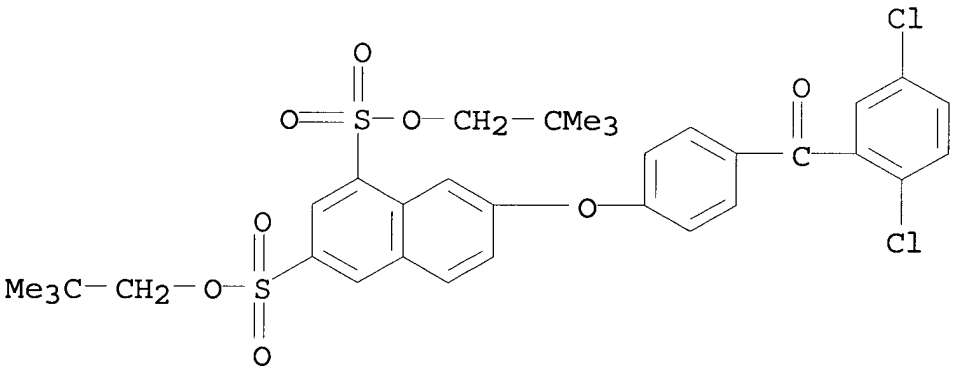

CM 2

CRN 1478-61-1
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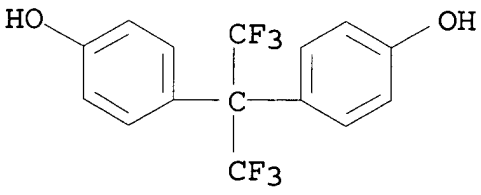
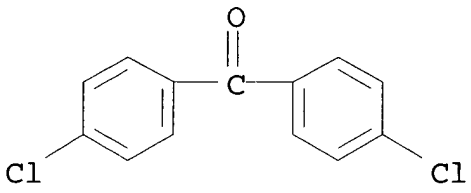


CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



RN 663920-37-4 ZCAPLUS
CN Benzenesulfonic acid, 5-[4-(2,5-dichlorobenzoyl)phenoxy]-2-[4-[(2,2-dimethylpropoxy)sulfonyl]phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

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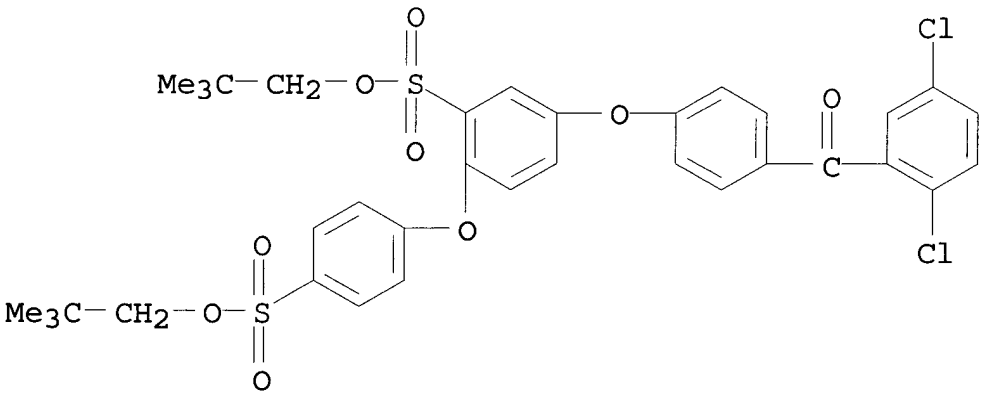
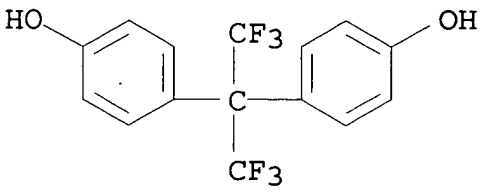


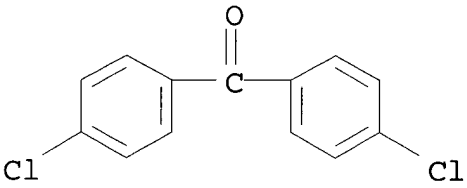
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2



CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



IT **663920-27-2DP**, hydrolyzed **663920-28-3DP**, hydrolyzed **663920-29-4DP**, hydrolyzed **663920-32-9DP**, hydrolyzed **663920-37-4DP**, hydrolyzed
(ionic conducting polymer; prepn. of polyarylene-contg. arom. sulfonic acid for polymer solid electrolyte and proton-conductive membrane)

RN 663920-27-2 ZCAPLUS
CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2-methylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

CM 1

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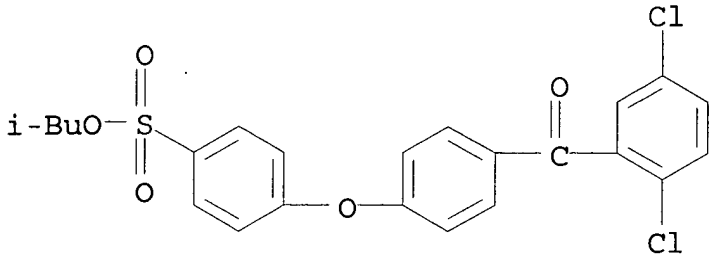

CM 2

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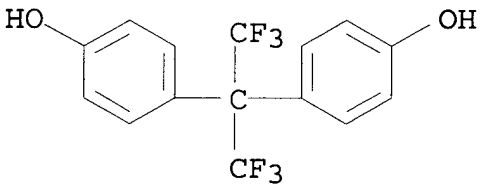
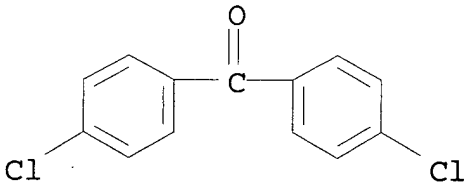


CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



RN 663920-28-3 ZCAPLUS
CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

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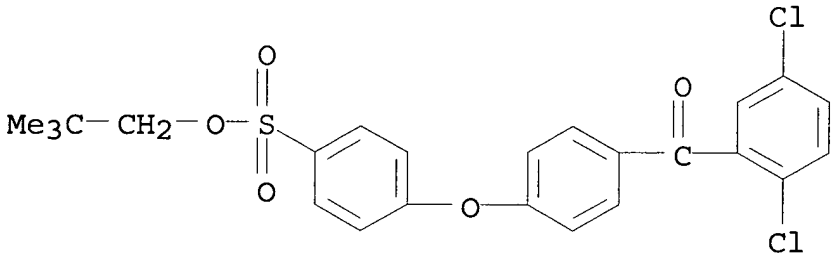

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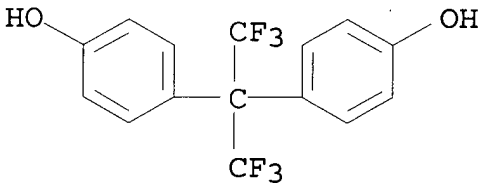
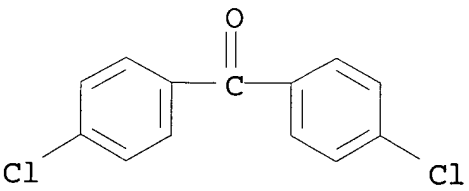


CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



RN 663920-29-4 ZCAPLUS
CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone

and 4,4'-(9H-fluoren-9-ylidene)bis[phenol] (9CI) (CA INDEX NAME)

CM 1

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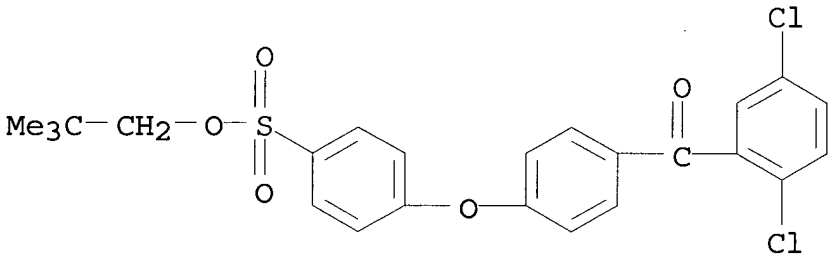

CM 2

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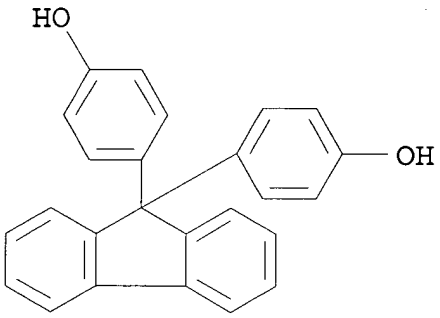
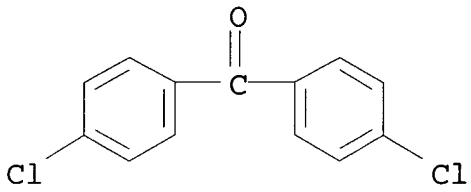


CM 3

CRN 90-98-2
CMF C13 H8 Cl2 O



RN 663920-32-9 ZCAPLUS
CN 1,3-Naphthalenedisulfonic acid, 7-[4-(2,5-dichlorobenzoyl)phenoxy]-, bis(2,2-dimethylpropyl) ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

CM 1

CRN 663920-31-8
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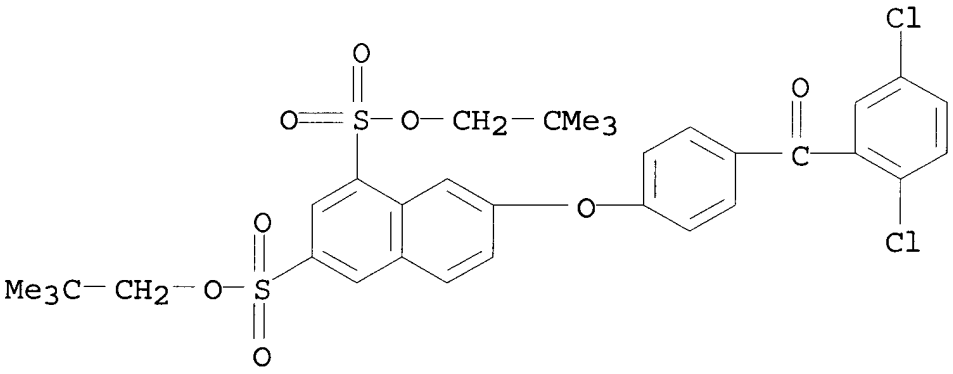

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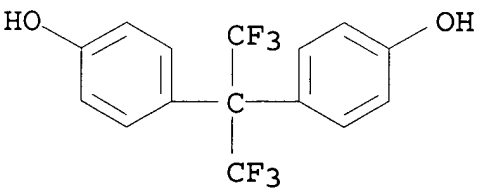
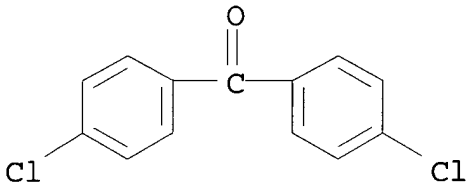


CM 3

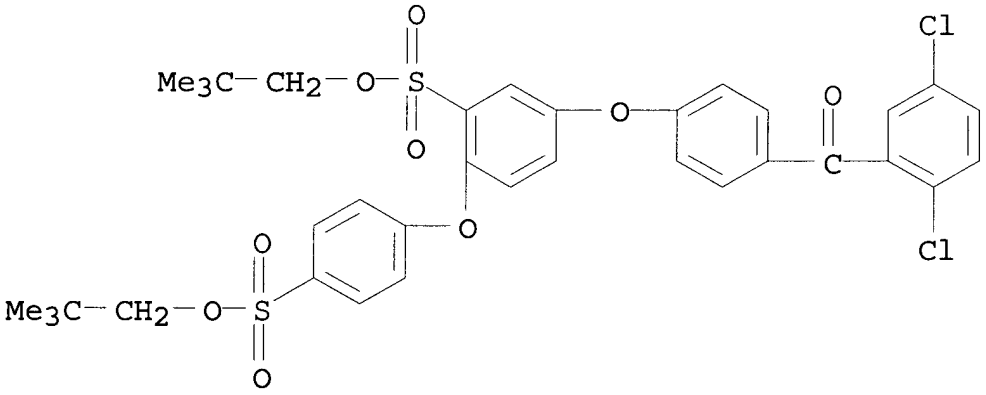
CRN 90-98-2
CMF C13 H8 Cl2 O



RN 663920-37-4 ZCAPLUS
CN Benzenesulfonic acid, 5-[4-(2,5-dichlorobenzoyl)phenoxy]-2-[4-[(2,2-dimethylpropoxy)sulfonyl]phenoxy]-, 2,2-dimethylpropyl ester, polymer with bis(4-chlorophenyl)methanone and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA INDEX NAME)

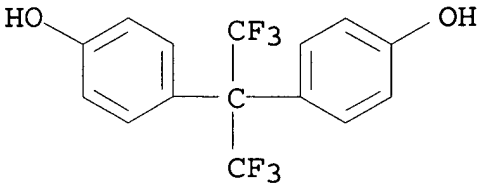
CM 1

CRN 663920-36-3
CMF C35 H36 Cl2 O9 S2



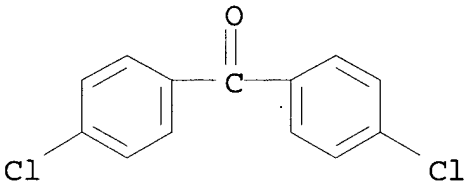
CM 2

CRN 1478-61-1
CMF C15 H10 F6 O2

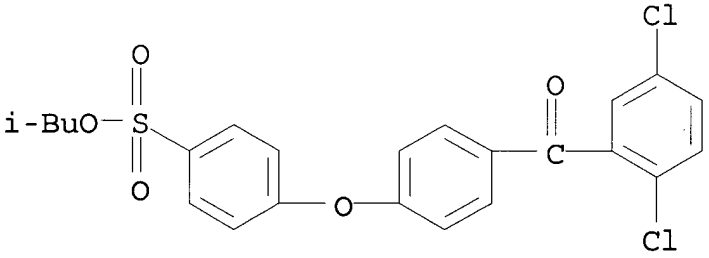


CM 3

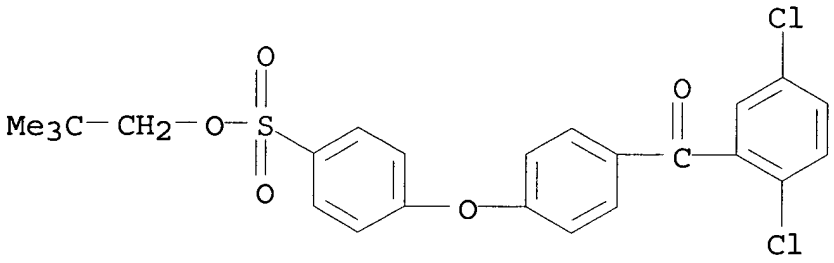
CRN 90-98-2
CMF C13 H8 Cl2 O



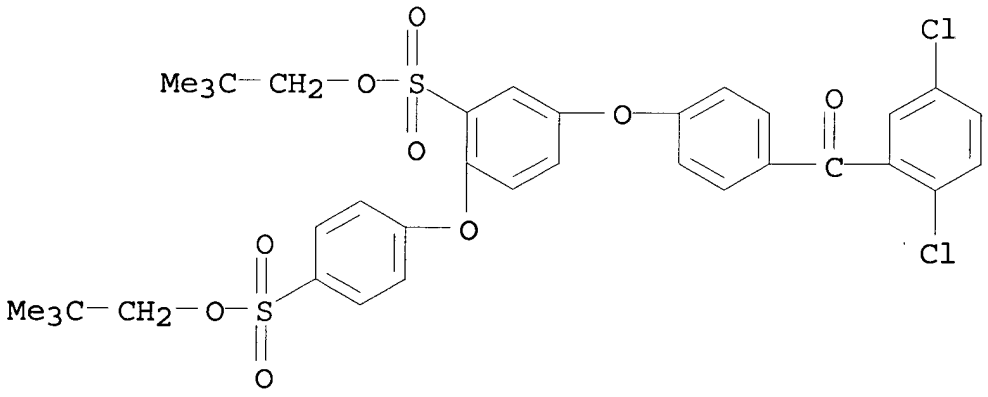
IT **663920-25-0P 663920-26-1P 663920-36-3P**
(monomer; prepn. of polyarylene-contg. arom. sulfonic acid for polymer solid electrolyte and proton-conductive membrane)
RN 663920-25-0 ZCAPLUS
CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2-methylpropyl ester (9CI) (CA INDEX NAME)



RN 663920-26-1 ZCAPLUS
CN Benzenesulfonic acid, 4-[4-(2,5-dichlorobenzoyl)phenoxy]-, 2,2-dimethylpropyl ester (9CI) (CA INDEX NAME)



RN 663920-36-3 ZCAPLUS
CN Benzenesulfonic acid, 5-[4-(2,5-dichlorobenzoyl)phenoxy]-2-[4-[(2,2-dimethylpropoxy)sulfonyl]phenoxy]-, 2,2-dimethylpropyl ester (9CI) (CA INDEX NAME)



IT **663920-27-2P 663920-28-3P 663920-29-4P**
663920-32-9P 663920-37-4P
(ionic conducting polymer precursor; prepn. of polyarylene-contg. arom. sulfonic acid for polymer solid electrolyte and proton-conductive membrane)

IT **663920-27-2DP**, hydrolyzed **663920-28-3DP**, hydrolyzed **663920-29-4DP**, hydrolyzed **663920-32-9DP**, hydrolyzed **663920-37-4DP**, hydrolyzed
(ionic conducting polymer; prepn. of polyarylene-contg. arom. sulfonic acid for polymer solid electrolyte and proton-conductive membrane)

IT **663920-25-0P 663920-26-1P 663920-36-3P**
(monomer; prepn. of polyarylene-contg. arom. sulfonic acid for polymer solid electrolyte and proton-conductive membrane)